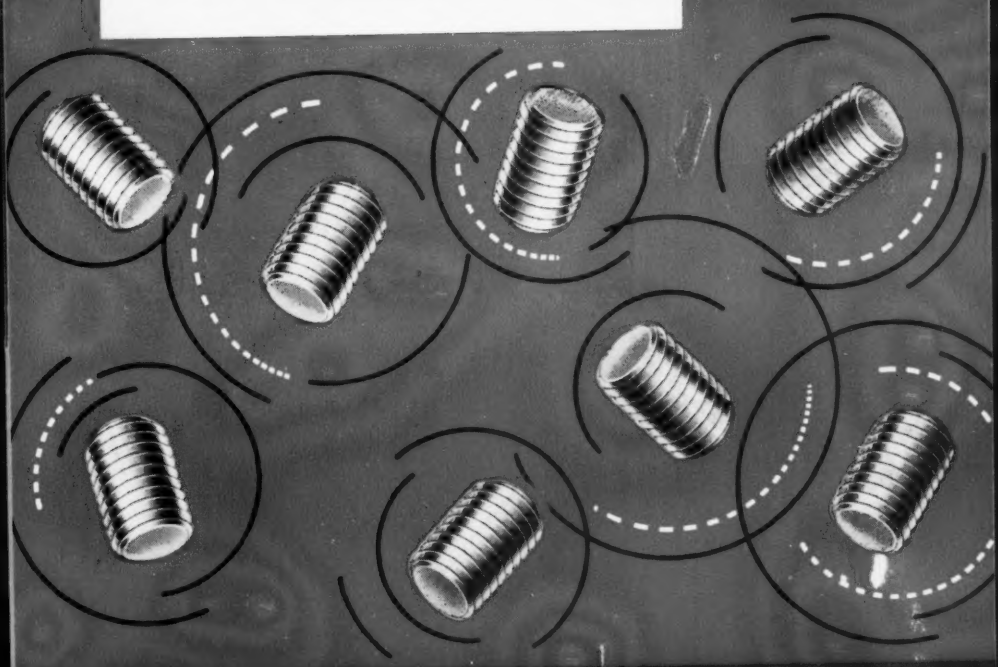
products finishing

MARCH 1961



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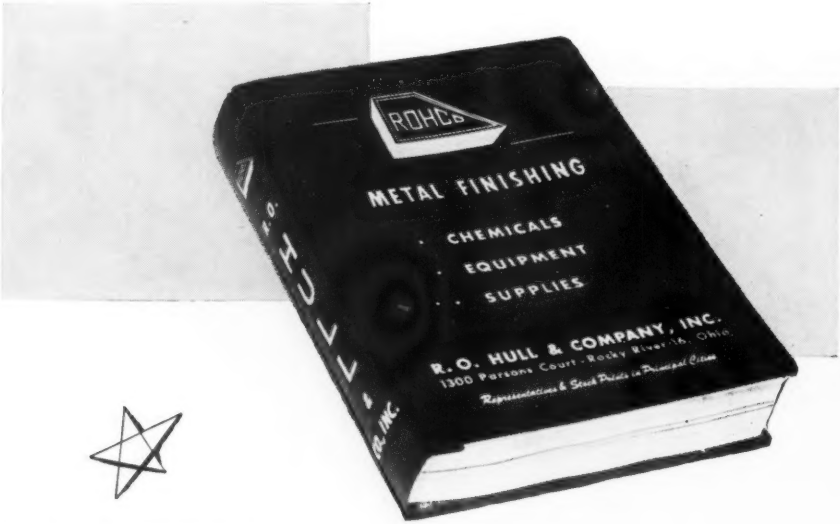
finishes on metal products

EVERYTHING BUT



R. O. HULL & COMPANY, INC., AND ITS LOCAL REPRESENTATIVES HANDLE MOST EVERYTHING FOR THE METAL FINISHING INDUSTRY. CONTACT YOUR LOCAL ROHCO REPRESENTATIVE ABOUT THE METAL FINISHING CHEMICALS, EQUIPMENT, AND SUPPLIES THEY CAN PROVIDE.

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Users everywhere agree that their best way to clean iron and steel parts is to tank-soak them in a hot solution of heavy-duty Oakite 24. This hard-working alkaline cleaner gets under the dirt layers and literally tears the soil from the surface. Despite excessive soil contamination of solution Oakite 24 maintains proper pH level and provides long, effective cleaning action.

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years' leadership in industrial cleaning

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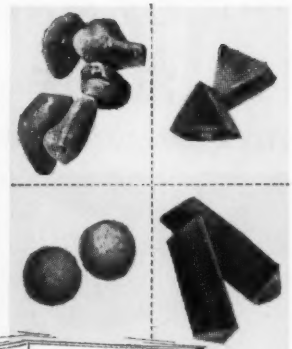
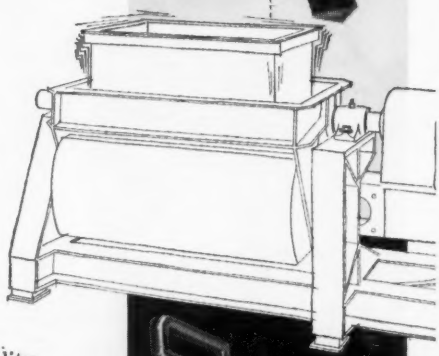
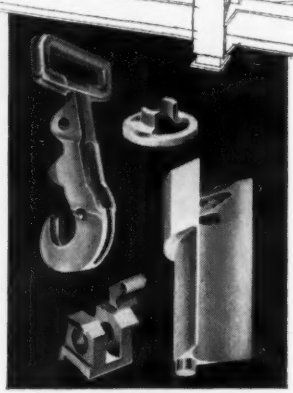
Barrel finishing is best finishing

...with TUMBLEX® abrasives

... in every type of rotating or vibratory equipment







Keeping pace with the latest advancements in barrel finishing equipment, Norton TUMBLEX abrasives are first in the field for best results with vibratory machines ... developed for faster, lower cost finishing of the widest range of parts, especially the most complicated.

The recognized advantages of TUMBLEX abrasives help assure improved product quality and appearance — plus the fastest, easiest way to cut finishing costs-per-piece . . . by this new vibration method.

These advantages are also brought to the entire range of barrel finishing operations of both rotating-barrel and vibration types, including:

Removing burrs . . . smoothing off feather edges . . . refining surface finish . . . burnishing for luster or color . . . preparing surfaces for painting, enamelling or plating . . . imparting matte finish . . . removing dirt, grease or heat-scale.

Send your samples of parts — large or small, simple or intricate — to our Sample Processing Department. We'll barrel finish them on the most suitable machines — vibratory or rotating — and return the samples with a report on the TUMBLEX abrasives and machine type you need to improve product quality and cut production costs. NORTON COMPANY, General Offices, Worcester 6, Mass. Plants and distributors around the world.

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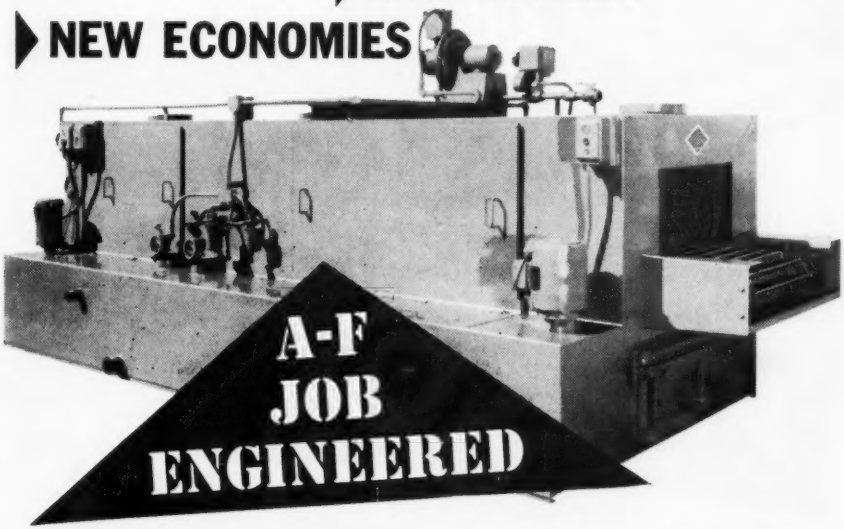
▶ NEW DESIGN

▶ NEW ECONOMIES



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Plant-Wide Conveying Systems

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30 YEAR OLD MEAKER "AUTOMATIC" PLATES 65-70 TONS OF PRODUCTS EVERY EIGHT HOURS AT CROUSE-HINDS CO.

In operation for over 30 years, the MEAKER AUTOMATIC at Crouse-Hinds, Syracuse, New York, turns out 65-70 tons of zinc plated condulets every eight hours. What's more, no down time has been recorded in all these years as the fault of the machine.

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No wonder Mr. Quinn adds: "If we were to install another automatic plater tomorrow, we'd insist on a MEAKER with little change from the one we have."

MEAKER has been building automatic processing equipment for continuous or batch type metal finishing since 1899 . . . from "compact-a-matic" units occupying minimum floor space and for limited production requirements—to the world's largest automatic plating installation which occupies over 180,000 square feet and produces 4½ acres of plated surface every 16 hours.

Our catalog "WHEN TO AUTOMATE" will give you some valuable ideas for improving profits through automatic plating or metal finishing.

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A rugged 5-gallon airless pump of simplified design. Provides peak "one-gun" performance.

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*Slightly higher in West

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Compare price—and compare *performance*—with other complete airless outfits. Then contact your nearest DeVilbiss supplier. The DeVilbiss Co., Toledo 1, Ohio. Also Barrie, Ont.; London, England; São Paulo, Brazil. Offices in principal cities.

FOR TOTAL SERVICE, CALL

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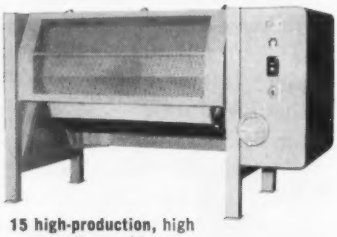
RAMPE BARREL FINISHERS OFFER

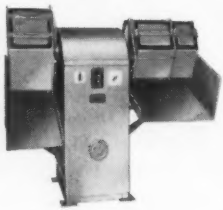


15 high-production, high capacity machines.

more models more output

71 different models available to fit every specific need

3 deluxe safety-enclosed cabinet models.



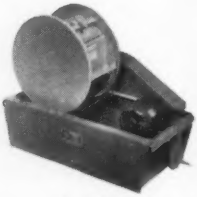
14 twin barrel machines for flexibility.

Rampe barrel finishing machines assure **exactly** the right **standard** model to fit every need. All are immediately available from stock — from two quarts to 40 cu. ft. capacity — from single barrel to six-compartment types.

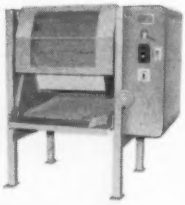
Best of all, Rampe barrels feature "Unit-Design" construction, permitting quick-change from one to as many as six compartments **without special tools or modifications!** Too, the patented Rampe "Floating Power" Drive on most models gives smoother operation, greater service life.

Profit now! Send today for details on industry's most complete line.

4 bench-type, open or closed barrels.



3 portable roller barrel models.



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Cleveland 10, Ohio

RAMPE
Precision Barrel Finishing Machines

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amb·i·ent

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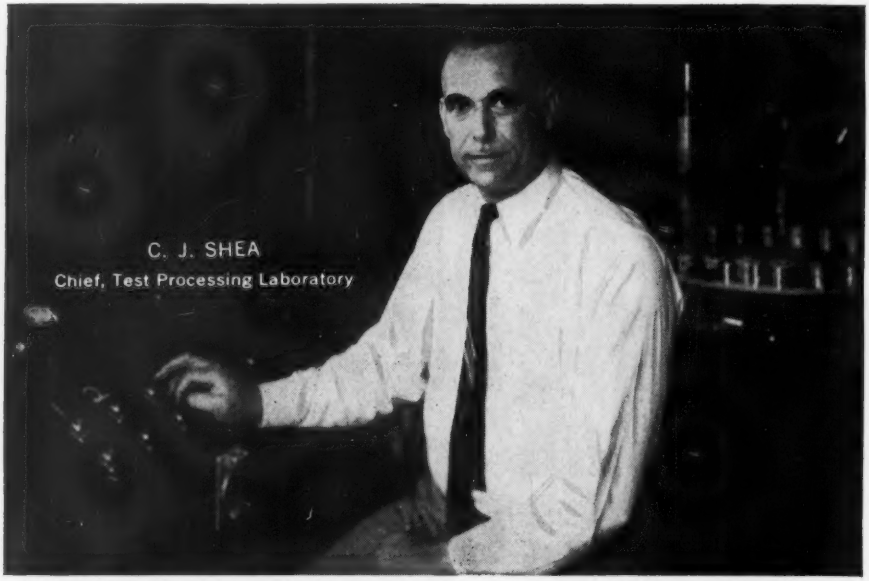

MEET THE PEOPLE BEHIND THE PACKER-MATICS

Some of our salesmen have labeled our Test Processing Laboratory, the "bad news department." Justifiably interested in making a sale, they can be awfully disappointed if the sample parts they send in from prospective customers for experimental buffing or polishing either don't represent the right kind of application for our automatics ... production requirements turn out to be unrealistic ... or, tooling gets fancier than originally expected.

But meeting the customers needs ... both insofar as finish and quantity output are concerned ... represent the only guides we follow. We must absolutely convince ourselves that the job is right ... then we are in a position to issue the kind of reassuring guarantees people have come to expect with their Packer-Matics. There has never been any deviation from this established approach and the record our machines have made in operation over a 27 year period is the best evidence we can offer to prove our point. We know ... our salesmen have learned ... our customers have been convinced ... Packer-Matics produce as specified ... perform as promised ... always.

C. J. Shea

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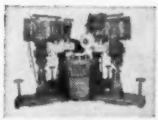
Model No. 14-45 Continuous Rotary

Model No. 13-10 Rotary Indexing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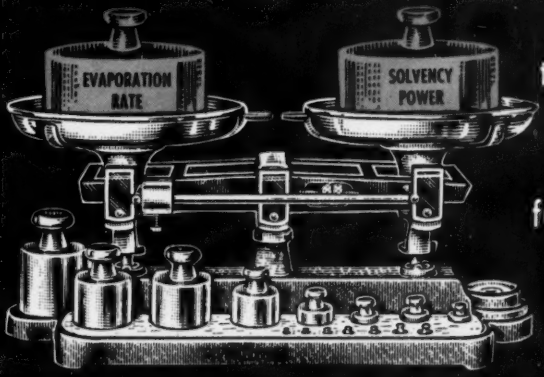

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Product Finishing

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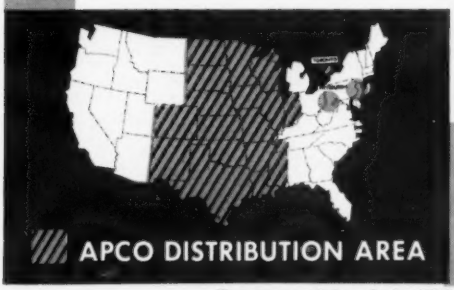

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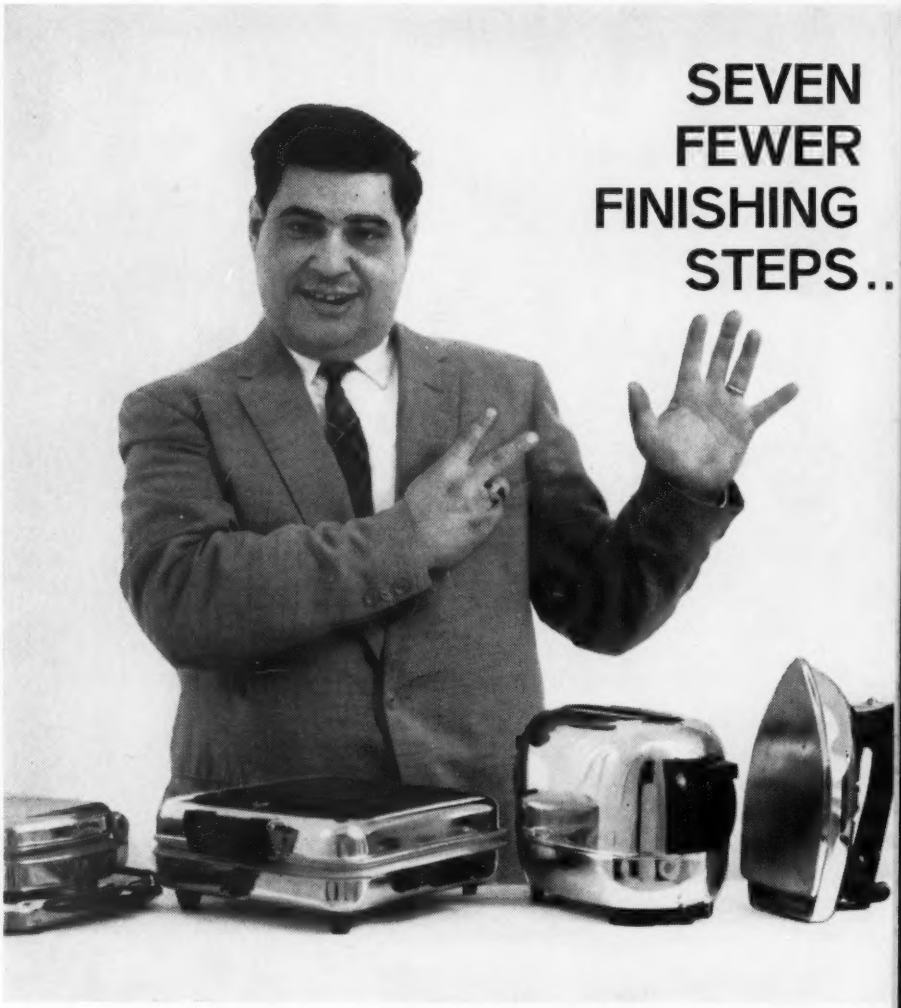


2 OPERATIONS SAVED.
On base of small waffle iron, 1 cut-down operation, and 1 hand coloring operation have been eliminated through the use of Superlume.

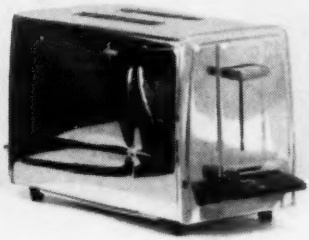
1 OPERATION SAVED.
On base of large waffle iron, 1 coloring operation is no longer necessary.

3 OPERATIONS SAVED.
On round toaster shell, 1 cut-down operation and 2 coloring operations have been eliminated.

1 OPERATION SAVED.
On the steam iron shoe, 1 hand coloring operation has been eliminated.

yet SUPERLUME vastly improves all 5 of these Son Chief products ...and at no extra cost.

says NICHOLAS J. LAZZARO, JR.
Asst. Plant Superintendent
in Charge of Finishing,
Son Chief Electrics, Inc.,
Winstead, Connecticut



HIGHER QUALITY FINISH.
On square toaster shell, same finishing operations are required with Superlume, but appearance of product is tremendously improved. On all 5 products, in fact, Superlume has stepped up product quality appreciably—and, in every instance, *at no increase in cost.*

Son Chief Electrics, Inc., appliance makers, sought a thicker, brighter plate, more rapidly applied. They found it in Superlume—along with major reductions in finishing operations, plus what Nick Lazzaro calls "Tremendous improvement in our products' appearance . . . a real breakthrough in quality."

Actually, Son Chief is plating *twice* as thick in the same time as before (using 60 amps per sq. ft. instead of 30).

They're plating flat pieces now and forming *after* plating . . . a big production advantage unique with highly ductile Superlume.

Superlume bath is easier to maintain. Son Chief's normal operating schedule is 5 days, 16 hours a day. But for two months every year, they work on a *24-hour/5-day basis.* Average pieces per hour through trouble-free Superlume: 336, with a low of 226, a high of 904. Son Chief plates 30 different parts ranging from 1 to 20 inches long. Superlume bath in use: 3100 gallons.

Good-sized operation . . . healthy benefits . . . no added production costs. For full facts on Superlume as applied to *your* operation, contact H-VW-M. Chances are you, too, will be better off with this better bright nickel bath.

H-VW-M
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   No. 400—Non-etch type, free-flowing, granular, 100% active with good hard water tolerance; or

   No. 416—Etch type, non-sludging, non-scaling. Acts uniformly and easier to desmut after etching.

2. **LUSTER-ON DE-OXIDIZER No. 480**—Room temperature operation with no noxious fumes. Safer than nitric acid. Dry, granular, free-flowing.

3. **LUSTER-ON SEALER No. 222-M**—A chromate type conversion coating, meeting government specification MIL-C-5541, gives corrosion protection and acts as a paint base. Maximum corrosion protection with brush, dip or spray applications in 10 seconds to 3 minutes. Clear or yellow films. Extremely economical.

*Compared against other popular materials.

For the complete aluminum treatment specify Luster-on

The Chemical Corporation
83 Waltham Avenue,
Springfield 9, Massachusetts

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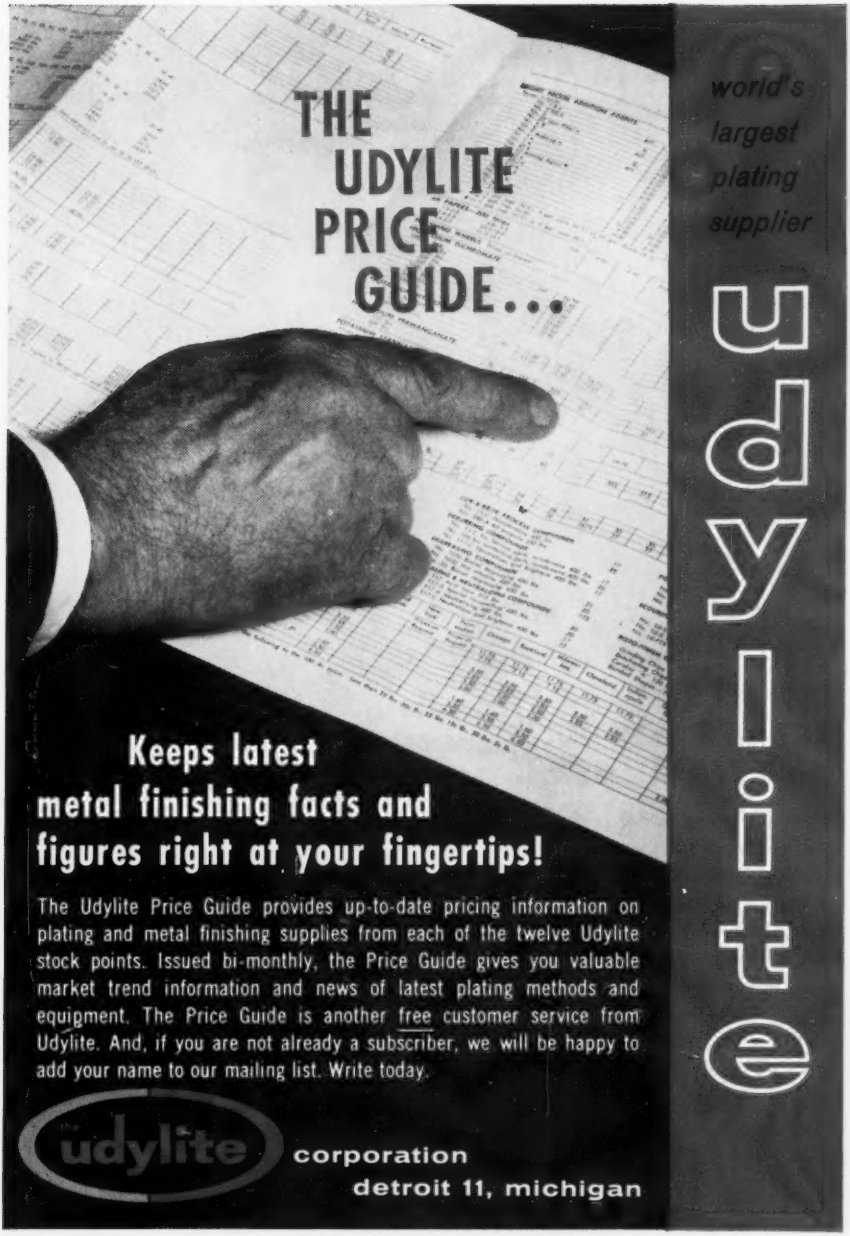
THE UDYLITE PRICE GUIDE...
world's largest plating supplier
udylite
Keeps latest metal finishing facts and figures right at your fingertips!
The Udylite Price Guide provides up-to-date pricing information on plating and metal finishing supplies from each of the twelve Udylite stock points. Issued bi-monthly, the Price Guide gives you valuable market trend information and news of latest plating methods and equipment. The Price Guide is another free customer service from Udylite. And, if you are not already a subscriber, we will be happy to add your name to our mailing list. Write today.
udylite corporation
detroit 11, michigan

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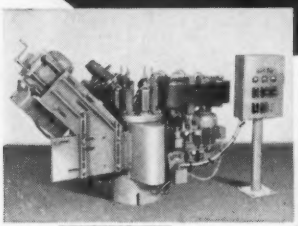
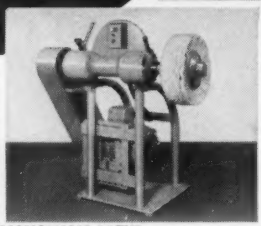
MURRAY-WAY SPECIALIZED FINISHING EQUIPMENT

JUNIOR FLAT POLISHER— versatile production unit for economically grinding, polishing, or deburring flat surfaces.

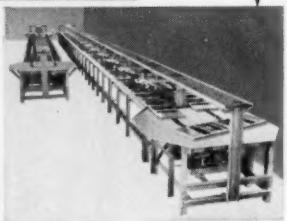
HORIZONTAL-PLATEN CONVEYOR built to fit your exact requirements.

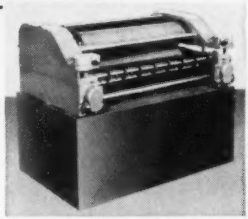


POLISHING AND BUFFING TABLE— small dial table has abrasive belt head and buffing head for spiral aluminum shapes



ECONOMICAL LATHE— stripped of many unnecessary "frills" to keep costs to a minimum.

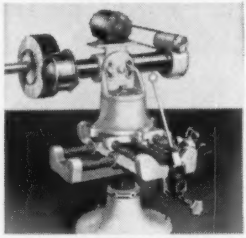




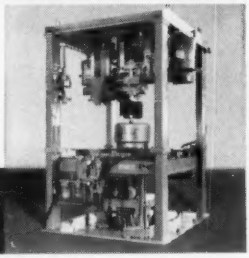
ROLLER COATER— a trouble-free, precision unit that coats one or both sides of a sheet.

...IMPROVES QUALITY, REDUCES COSTS FOR METAL PRODUCTS MANUFACTURERS

Polishing, buffing, grinding, filtering, deburring, materials handling . . . whatever your problem, Murray-Way equipment will do the job better and more economically. Fresh ideas based on a solid background of experience, enable Murray-Way's fine engineering and production departments to handle any and all of your production problems— large or small. The BETTER WAY is the MURRAY-WAY.



HAN-D-MATIC— low cost machine with interchangeable components for buffing, grinding, and deburring.



WIRE BRUSH MACHINE— deburrs automatic washer and dryer basket holes prior to painting.

MURRAY WAY

MURRAY-WAY CORPORATION
P.O. BOX 180 • MAPLE RD. EAST
BIRMINGHAM, MICH.

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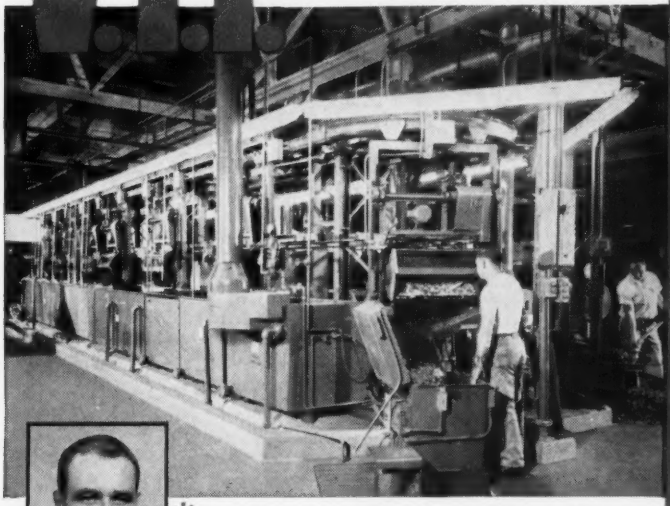
VIP*

CUTS LABOR COST 60%, REDUCES MATERIAL COST 15%!

world's largest plating supplier

udylite



*Variable Integrated Processing steps-up production, improves plating efficiency for Chrome-Rite Company

Chrome-Rite Company, Chicago, Illinois, a large job plating shop, recently selected and installed a Udylite V.I.P. Automatic Barrel Plating Machine to replace a manual line for zinc plating bulk parts.

"We find that our direct labor cost has been cut 60% while the cost of materials has decreased approximately 15%", writes Bill Crawford, Vice President. "In addition, we are now able to handle about 99% of our zinc plating volume on the new V.I.P. and maintain an even more consistent high finish-quality than ever before."

Experienced plating men like Bill Crawford are quick to note the many production plating advantages of the V.I.P. You, too, should consult your Udylite Sales Engineer for complete information on the versatile V.I.P. Call him today. Or, write:

Udylite corporation
detroit 11, michigan

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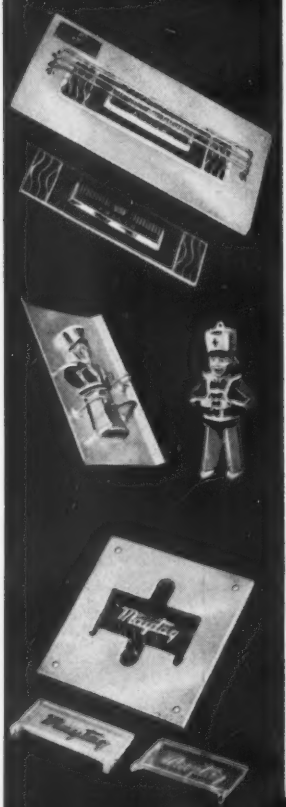
FIORE

MASKS FOR PRECISION PAINTING



Fiore Spray Masks are used on plastics, stampings and die-castings that have depressed or raised detail and on any other irregular shaped surface. If a product can be molded, stamped or die-cast, it can be decorated by Fiore spray masks.

Over ten years many manufacturers have been decorating their products by using Fiore spray-masks, associated jigs, fixtures and spray machines. Fiore Spray Masks and accessories are simple to use. An unskilled worker can operate them without special training and obtain perfect duplication and greater speed at a minimum cost.

Send for your free copy of our 20 page book. Or, send your samples and drawings for consultation and estimates.

WM. M. FIORE, INC.

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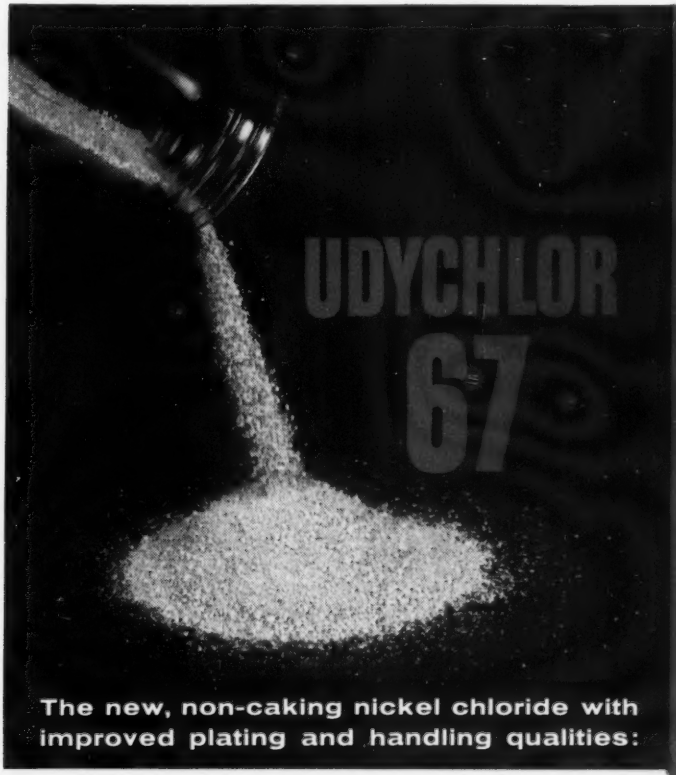

udylite

The new, non-caking nickel chloride with improved plating and handling qualities:

Gives platers 13% more nickel chloride per pound

New Udychlor 67 nickel chloride with less water content offers platers many advantages not found in ordinary nickel chloride:

- **Purity is higher.**
- **Nickel chloride content has been boosted from 54% to 67%.**
- **Udychlor 67 is non-caking; particles are more uniform.**
- **There's less handling and storage.**
- **It features quick-dissolving characteristics.**

What's more, on the basis of nickel chloride content, you pay no more when you specify Udychlor 67! Its many superior plating and handling features are yours at no extra cost. Order Udychlor 67 today!

world's largest plating supplier

Udylite

The Udylite Corporation
Detroit 11, Michigan

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NEW! NEW! NEW! NEW! NEW! NEW! NEW! NEW! NEW! NEW! NEW! NEW!

LESS HANDLING — FASTER OUTPUT LOWER COST WITH THESE *SYNTRON*

VIBRATORY

BARREL FINISHING MACHINES

A NEW CONCEPT IN PARTS FINISHING!

NEW HIGH SPEED, COMPACT ELECTROMAGNETIC UNITS!

LOADING
Fast, easy! Inspect parts while work cycle continues.

ADJUSTING VIBRATION
One control to vary amplitude.

PREPARING FOR EMPTYING
Connect hose; flush out compound.

Unretouched photos demonstrate results!

Call the Syntron Sales Agency in your area for full details or write

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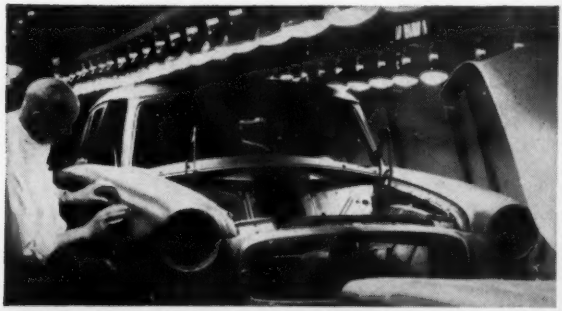

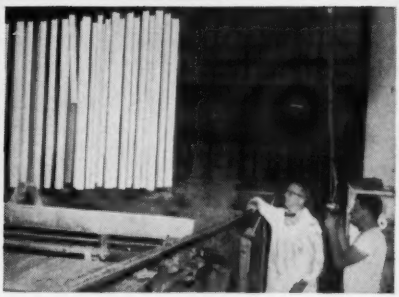

"FULL-LINE" ECONOMY IN METAL PROCESSING

Chemicals • Equipment • Service

When you use Pennsalt metal processing chemicals, you gain the built-in savings of a complete line that assures you of getting the material exactly suited to each job, at the lowest cost.

Over 40 types of cleaners for all metals . . . a full range of etchants and brighteners . . . descaling and pickling compounds . . . Fosbond® phosphate coatings . . . Foscoat® and Foslube® cold-forming lubricants . . . Drawcote® deep-drawing lubricants . . . paint strippers . . . strippable vinyl coatings. All quality controlled, readily available . . . because Pennsalt makes its own alkalies and other basic materials.

The Pennsalt System Approach treats your metal finishing line as an integrated system . . . makes chemicals and equipment work together for high-speed production, product quality, lower costs. Key to this approach is personalized service by Pennsalt's nation-wide organization of trained specialists. Our men analyze your process requirements, design processing lines, aid in installation and start-up. And even more important, they make regular service calls to keep your finishing line running efficiently month after month.

Call or write today for a consultation. And write for free booklet "The Pennsalt Metal Preparation Service Plan."

. . . a better start for your finish®

METAL PROCESSING DEPARTMENT

PENNSALT CHEMICALS CORPORATION

East: 3 Penn Center, Philadelphia 2, Pa.

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ESTABLISHED 1850

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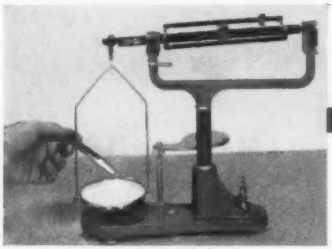
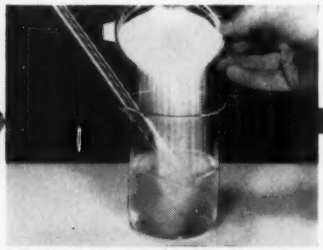
Here's how you can save time, and mixing errors with either

New "Direct-Route" Method



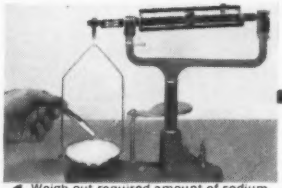
1 Just weigh required amount of sodium-copper or potassium-copper double salt.



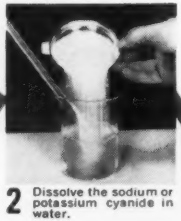
2 Dissolve the desired double salt in water or plating solution.

Laboratory demonstration shows how "direct-route" method saves time

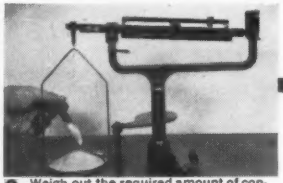
Old "Indirect" Method



1 Weigh out required amount of sodium or potassium cyanide.



2 Dissolve the sodium or potassium cyanide in water.



3 Weigh out the required amount of copper cyanide.

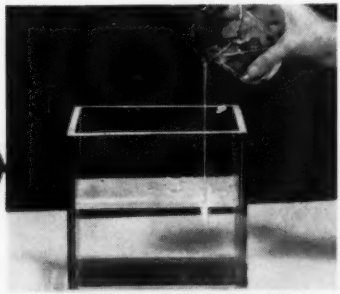
4 Add copper cyanide to water and make a slurry.

5 Dissolve the copper cyanide slurry in solution of sodium or potassium cyanide.

CALL DU PONT FOR ANY ONE OF THESE QUALITY PLATING PRODUCTS. You're assured of superior quality, dependable supply and expert technical service with plating chemicals from Du Pont... your reliable domestic source.

- **Sodium-Copper Cyanide Double Salt**
- **Potassium-Copper Cyanide Double Salt**
- **Copper Cyanide**
- **Potassium Cyanide**
- **All-purpose Cyanobrik® sodium cyanide (in briquette form)**
- **Cyanogran® M sodium cyanide (in granular form)**

reduce handling, avoid waste of Du Pont's Double Salts



3 Add directly to plating tank—no filtering necessary.

...avoids errors.

6 Add solution through a filter to plating tank.

SODIUM-COPPER CYANIDE OR POTASSIUM-COPPER CYANIDE

SAVE TIME AND REDUCE HANDLING...By using one Du Pont copper cyanide double salt instead of two separate chemicals, you eliminate several steps usually required to dissolve copper cyanide. Just weigh out the Du Pont double salt and dissolve it in water or plating solution. A "direct-route" process! (Compare old and new methods at left.)

AVOID WASTE AND MIXING ERRORS...because active ingredients are in the proportions usually required. This simplifies making and replenishing bath . . . prevents waste resulting from undissolved copper cyanide.

INCREASE CONVENIENCE AND SAFETY...With just one salt to dissolve you minimize handling steps. This means greater convenience—more safety.

Du Pont sodium-copper cyanide double salt and potassium-copper cyanide double salt are white, crystalline and readily soluble. They are made from ingredients of highest quality and purity —Du Pont copper cyanide, sodium cyanide and potassium cyanide.

SIMPLIFY CALCULATIONS...Balanced composition of Du Pont double salts makes it easy to determine amounts required for make-up or replenishment. (1 oz. potassium-copper cyanide double salt is equivalent to 0.26 oz. copper, or 0.37 oz. copper cyanide; 1 oz. sodium-copper cyanide double salt is equivalent to 0.29 oz. copper or 0.41 oz. copper cyanide.)

SODIUM-COPPER CYANIDE DOUBLE SALT

	SPECIFICATIONS	TYPICAL ANALYSIS
Copper	28.7% min.	29%
"Free" sodium cyanide	0.4 to 2.0%	1%
Lead	7 ppm. max.	Less than 1 ppm.
Sulfides (as sulfur)	10 ppm. max.	Less than 5 ppm.
Insolubles	0.01% max.	0.01%

POTASSIUM-COPPER CYANIDE DOUBLE SALT

	SPECIFICATIONS	TYPICAL ANALYSIS
Copper	25.8%	26.3%
"Free" potassium cyanide	1.25% to 3.0%	2.9%
Lead	7 ppm. max.	Less than 1 ppm.
Sulfides (as sulfur)	10 ppm. max.	Less than 5 ppm.
Insolubles	0.01% max.	Trace

Both potassium and sodium double salts are shipped in convenient moisture-resistant 100-lb.-net fiber containers.

For further information or Technical Service call your Du Pont distributor or your nearest Du Pont office, listed at left.

ELECTROCHEMICALS DEPARTMENT • SODIUM PRODUCTS DIVISION
E. I. DU PONT DE NEMOURS & CO. (INC.), WILMINGTON 98, DELAWARE

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BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

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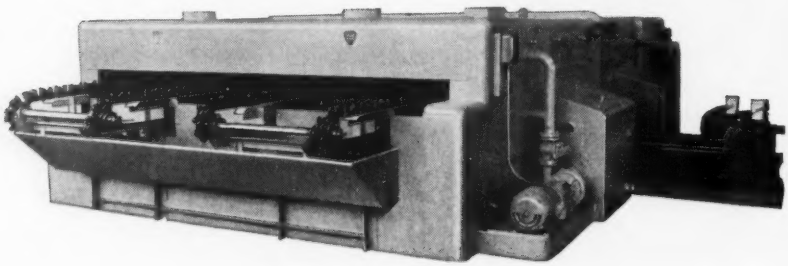
MACLEOD
CUSTOM-DESIGNED METAL CLEANING and FINISHING EQUIPMENT

Conveyor-Type WASH, RINSE, and DRY Machine



For Processing 12 ft. Aluminum Bar Stock

Manufactured for one of the nation's best known basic aluminum fabricators, this MACLEOD machine washes, rinses, and dries aluminum bar stock up to 12 ft. long, cleaning each bar so that it can be used in automatic screw machines without further processing.

As a means of keeping machine length to a space-saving minimum, bars are run crosswise, with each bar individually supported to prevent nicking or scratching. Machine operates at an average production speed of 12 bars per minute, at a mean conveyor speed of four f.p.m. Process cycle consists of 90 seconds hot wash, 45 seconds hot rinse, and 90 seconds high velocity air blowoff. Machine is gas-fired with complete safety equipment mounted on panels at the gas burners. Safety equipment features a low liquid level cutoff which automatically shuts off burners if solution level falls to a point where immersion tube is in danger of burning out.

This MACLEOD machine is designed with a number of leak-proof doors for easy access to spray risers and machine interior. In addition, automatic loading and unloading devices can be incorporated to permit attendant-free operation.

Write for complete information on the MACLEOD line of metal cleaning and finishing equipment.

Let MACLEOD engineers plan your metal cleaning installation.

The MACLEOD Company
119 MOSTELLER RD., CINCINNATI 41, OHIO

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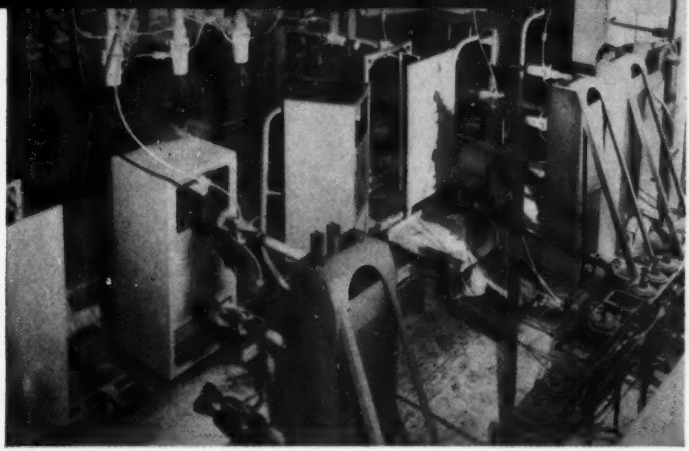
NEW

RANSBURG MOVING BELLS

increase paint mileage . . . improve quality on

KELVINATOR REFRIGERATORS



Ransburg's No. 2 Process moving bells —latest innovation in electrostatic painting—automatically paint mixed sizes of refrigerator cabinets and doors on Kelvinator's new finishing line.

On this job—first of its kind—limit switches re-position the reciprocating bells to accommodate various model sizes mixed on the same line. And, electric eyes selectively trigger the paint on and off between parts.

RESULTS? Automatic electrostatic spray painting—which replaced a battery of reciprocating automatic air guns —is providing Kelvinator with a beautiful, higher quality, and more uniform finish. Rejects, formerly a troublesome problem, have been practically eliminated. And, along with appreciable labor savings in this highly automated set-up, paint mileage is substantially improved . . . even bettering the savings indicated in pre-installation lab tests at Ransburg.

Like Kelvinator, other manufacturers of quality products will find Ransburg's moving bells the automation answer for production lines where batching of similar parts is impractical.

RANSBURG

NO REASON WHY YOU CAN'T DO IT, TOO!

Want to know how Ransburg No. 2 Process can improve the quality of YOUR painted products—and at the same time—cut YOUR paint and labor costs? Write for our No. 2 Process brochure. Or, if your production doesn't justify automatic painting, let us tell you about the No. 2 Process Electrostatic Hand Gun which can be used in either conveyorized, or non-conveyorized painting.

RANSBURG Electro-Coating Corp.

Box 23122, Indianapolis 23, Indiana

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NOW—

DOUBLE PROTECTION

against corrosive conditions on aluminum, magnesium or zinc

IRIDITE® Chromate Conversion Coatings

IRILAC® Clear Protective Coatings

Simply follow up the IRIDITE process with a fast, easy application of IRILAC . . . give your product extra protection for longer resistance to corrosion, longer storage life and more attractive appearance.

ON ALUMINUM An IRIDITE-IRILAC finish provides longer life for storm windows, outdoor furniture and many other parts and assemblies. Choose from color finishes such as natural aluminum and golden yellow, and a range of colored dye finishes.

ON MAGNESIUM IRILAC over IRIDITE No. 15 increases corrosion protection, and provides finger print and abrasion resistance on all types of products, with color appearance ranging from light to dark brown.

ON ZINC IRIDITE plus IRILAC gives your product longer life and brighter appearance. Color choices range from bright-clear through yellow iridescent to military olive drab, in addition to colored dye finishes.

IRIDITE is the tradename for a specialized line of chromate conversion coatings that can be applied to any non-ferrous metal by brush, dip or spray methods — at room temperatures — manually or with automatic equipment.

IRILAC is the tradename for a line of clear protective coatings for all metals. As safe and easy to handle as water, they may be applied by brush, dip or spray methods. No exhaust or special fire protection equipment required.

For complete technical information on IRIDITE Chromate Conversion Coatings or IRILAC Clear Protective Coatings, write for FREE TECHNICAL MANUAL. Or, see the Allied Field Engineer in your area. He's listed under "Plating Supplies" in the yellow pages.

Allied Research Products, Inc.

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European Agent: Stora Gronbergar, Stergaten 10, Stockholm, Sweden
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IRIDITE® Chromates | **IRILAC®** Coatings | **ISOBRITE®** Brighteners | **ARP®** Supplies | **WAGNER** Equipment

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LOOK FOR THE DIAMONDS—SIGN OF FINISHING QUALITY

4 good reasons why you should use IRIDITE

Chromate Conversion Coatings

FOR FINISHING ZINC OR CADMIUM

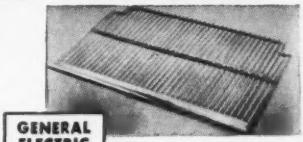
CORROSION PROTECTION—The wide range of Iridite coatings available gives you a choice of corrosion protection—from economical, mild protection of parts for shipment, storage or display, to extremely high protection under exposure to marine and highly humid atmospheres, gasoline or other hydrocarbons.

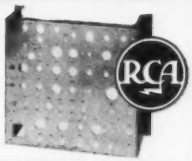
PAINT BASE—For an extremely tight bond for either baked or air-dried paints, non-porous Iridite blocks moisture penetration—prevents formation of metallic soap products beneath paint coatings.

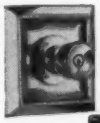
APPEARANCE—Your choice of colors ranging from clear through yellow iridescent to olive drab. Bright Iridite finishes can also be dyed to provide other color effects.

SPECIAL EFFECTS—Iridite, in combination with other Allied Research processes, can provide a wide variety of finishes. As an example, Iridite 8-P applied to zinc or cadmium, followed by an application of Irilac, gives a highly attractive simulated brass finish.

IRIDITE—a specialized line of chromate conversion coatings for nonferrous metals. Easily applied at room temperatures with short immersion times, manually or with automatic equipment. Forms a thin film which becomes an integral part of the metal. Cannot chip, flake or peel. Special equipment, exhaust systems or highly trained personnel not required.







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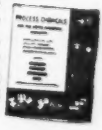

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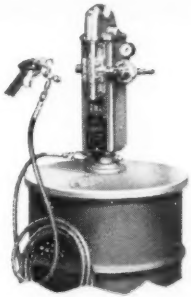

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THE DOW CHEMICAL COMPANY DOW Midland, Michigan

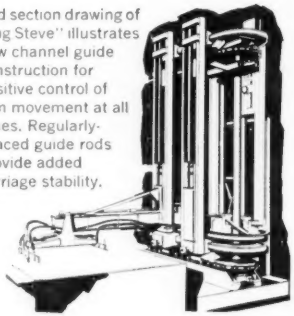
BIG STEVE puts more speed and muscle into automotive plating production!

NEW STEVENS RACK MACHINE IS FAST, TAKES HEAVY LOADS IN STRIDE, REQUIRES LITTLE MAINTENANCE!

To do the really big plating job required in a prominent auto manufacturer's plant, this rugged, newly-designed "Big Steve" Automatic Rack Machine was installed and challenged with a heavy production schedule. "Big Steve" proved to be more than a match for the job. Plating speed, as well as load-per-rack, was greatly increased. Schedules were easily met; cost-per-piece was reduced.

"Big Steve" with its rugged, new channel guide and roller-carriage lift mechanism provides absolute control of arm movement during raising, lowering and transfer operations.

Simplicity, construction strength and design versatility . . . plus extremely low maintenance . . . are only a few of the many "Big Steve" features you should investigate. Write for complete information today.



End section drawing of "Big Steve" illustrates new channel guide construction for positive control of arm movement at all times. Regularly-spaced guide rods provide added carriage stability.

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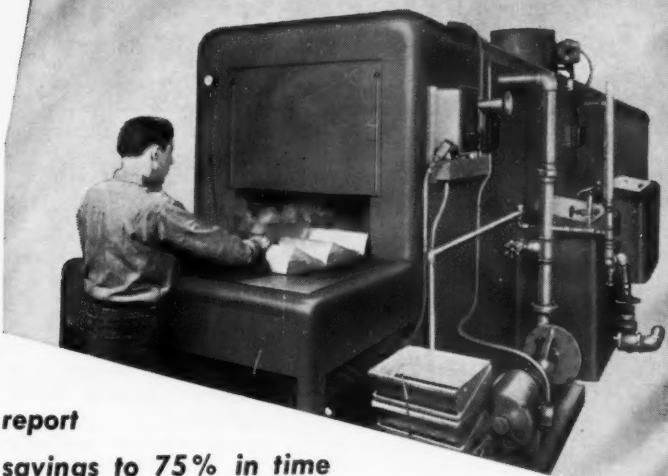

report

savings to 75% in time

81% in labor . . . 120% more production!

When you find a smoothly functioning finishing line, you'll often find it headed by a Cincinnati Cleaning Machine. Whatever your production . . . whatever your problem . . . let Cincinnati engineers suggest a time and money-saving solution.

If you would like proof of Cincinnati's ability to engineer equipment to a problem and to a budget, too, write today. Absolutely no cost, no obligation. Cincinnati Cleaning & Finishing Machinery Co., 2008 Hageman St., Cincinnati 41, Ohio.

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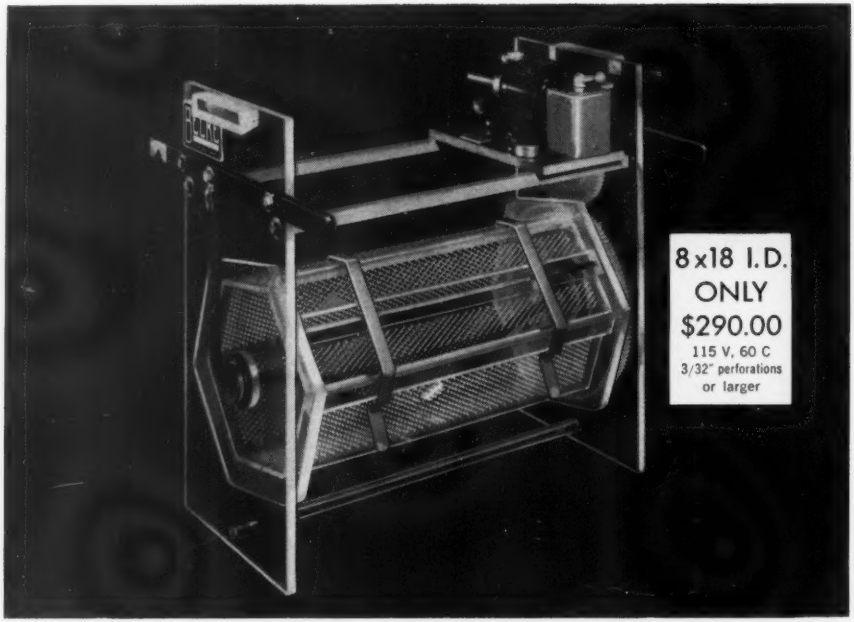

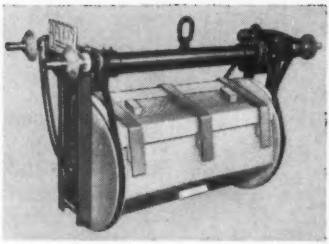

BELKE Quick Belt Change Hanger with polypropylene cylinder designed to withstand cleaning and plating cycles up to 200F

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A Tremendous Bargain in Low Cost Plating Capacity!

Consider the added plating efficiency and capacity this 8x18 barrel brings you at low cost.

You can operate this barrel in still plating tanks; you get extra plating capacity when needed with no added investment in tanks or space. You can set this barrel aside quickly and have all the tank capacity for still plating when needed.

You can plate intermediate size loads at low cost and avoid tying up regular barrel production.

You can handle hard-to-plate jobs at low cost; again without disrupting your regular barrels.

The BELKE 8x18 is quality built throughout. The V-notched copper arms make positive contact any place on the cathode rod. One piece flexible cables assure full volume plating current. High temperature Plexiglas construction withstands cleaning and plating cycles.

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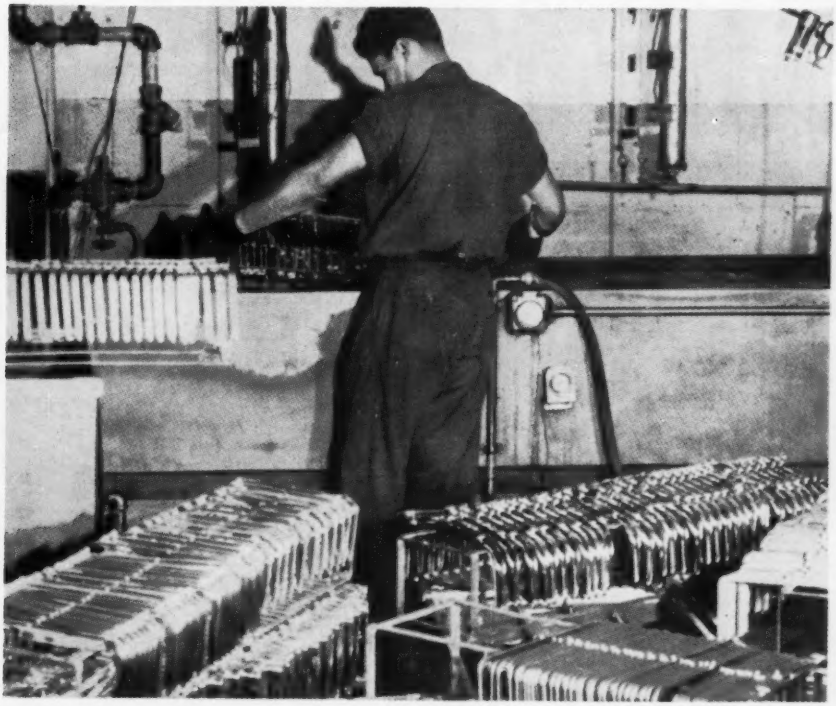


Metgal Novelty Company, Richmond Hill, L. I., degreases metal handbag frames.

302,400 PARTS BEFORE CLEANOUT

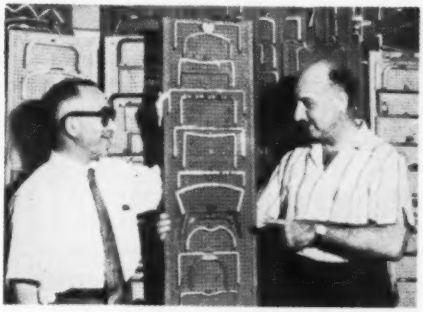
Metgal Novelty Company degreases thousands of metal handbag frames each week with Nialk® TRICHLORethylene.

It's not a simple cleaning job. Besides grease, they have to remove insoluble buffing compounds from the work. The metal might be brass, steel, plated copper or nickel plate.

The tanks "never go acid," says Sal Romano, co-owner. The stabilizer in Nialk TRICHLOR has *pep*—permanent staying power. It lasts, doesn't weaken between cleanouts. Since they get complete recovery of stabilizer on cleanout, they never have to add fresh stabilizer.

Regular tank checks are important to Metgal, too. Romano says, "Hooker and its local distributor, H. Harrington & Company, keep an eye on our operation so there is no undue loss of solvent."

Regardless of the metals you're working with, Nialk TRICHLOR can help solve your cleaning problems and save you money. Hooker's experience is yours for the asking. Call or write us about your problems or see your chemical distributor.



Henry Green (left), designer for H. Margolin & Company, leading handbag producer, and Richard Romano, Metgal co-owner, look over a display rack of handbag frames.

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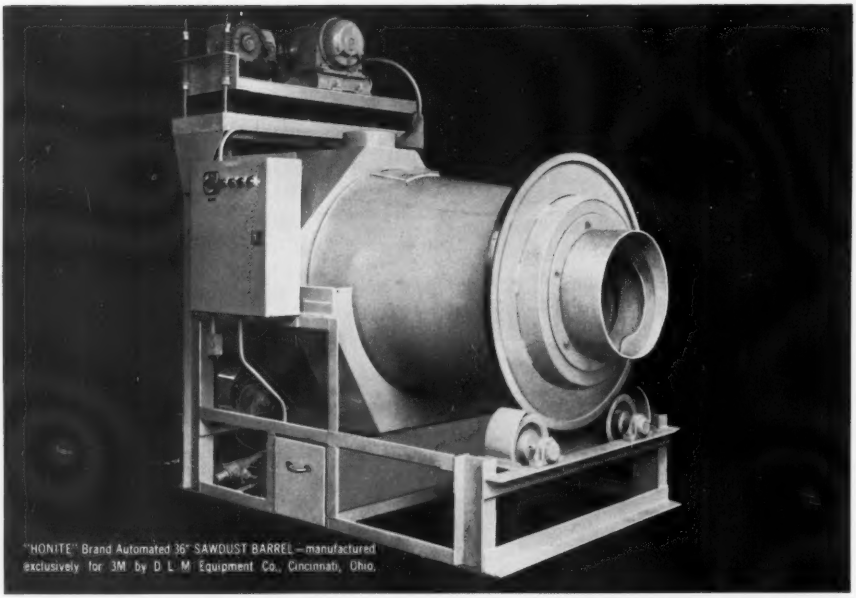


"HONITE" Brand Automated 36" SAWDUST BARREL—manufactured exclusively for 3M by D L M Equipment Co., Cincinnati, Ohio.

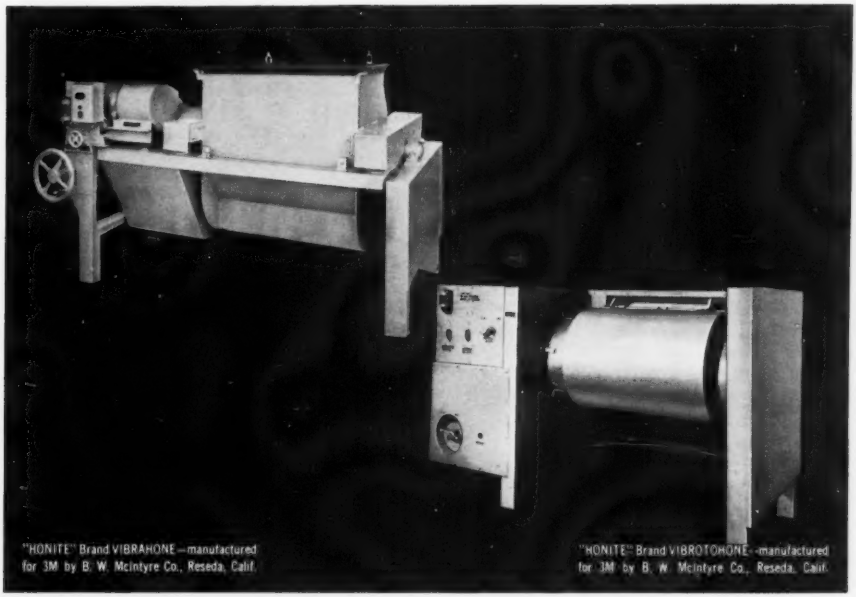
AT LAST, now from one source—3M—a complete line of "HONITE" Brand vibrating, rotating and automated barrel finishing equipment. Choose from more than 100 models, all embodying advanced engineering concepts to insure efficient, trouble-free operation.

AUTOMATED EQUIPMENT Your "HONITE" dealer has access to a completely new facility—one which provides semi-automated or completely automated barrel finishing equipment plus a custom-engineering service geared to plan and install entire systems of automation in your barrel finishing department.

"HONITE" automated equipment may be completely custom-built to suit your needs, or, in some instances your existing equipment may be automated. Standard "HONITE" automated equipment is also available, such as the 36" Sawdust Dryer pictured above. In its completely automated form, this machine performs loading, drying and polishing, media-part separation and unloading automatically.

"HONITE" AND "3M" ARE REGISTERED TRADEMARKS OF THE 3M CO., ST. PAUL 6, MINN.

. . . A COMPLETE LINE OF BARREL FINISHING EQUIPMENT



"HONITE" Brand VIBRAHONE—manufactured for 3M by B. W. McIntyre Co., Reseda, Calif.

"HONITE" Brand VIBROTOHONE—manufactured for 3M by B. W. McIntyre Co., Reseda, Calif.

VIBRATING EQUIPMENT

"HONITE" Brand vibratory equipment features two machines: VIBRAHONE, a tub type vibrator and VIBROTOHONE, a barrel type machine offering three distinct finishing actions —vibration, rotation, and vibration with rotation.

Unlike conventional vibrating equipment, these machines employ no springs but are supported by a revolutionary rubber-mount system. As a result more than 98% of the finishing force generated occurs within the barrel or tub. This is the most concentrated force in barrel finishing.

ROTATING EQUIPMENT

Choose from more than 92 models of the latest in barrel finishing machines—a wide variety of capacities and sizes.

Why settle for partial service on your barrel finishing needs? Now you can get the machines, media and methods from one dependable source. For information or sample processing of your materials, contact your "HONITE" Field Engineer or distributor or write: 3M Co., "HONITE" Division, Dept. HAC-31. 900 Bush Ave., St. Paul 6, Minnesota.

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PRODUCT BY ALCOA ALUMINUM

PROCESSING BY NSE

PRE-PAINT PROTECTION BY AMCHEM ALODINE*

A typical Alcoa Alumalure building siding installation is shown in the clean, functional lines of the Robinson Building, Elyria, Ohio.

How Amchem Pre-Paint Treatment, NSE Processing Help Put the "Lure" in Alcoa Alumalure!**

Alcoa Alumalure baked enamel finish on industrial roofing and siding sheet has made a startling impact in building circles. Available in 11 colors, it is widely used for new buildings as well as remodeling older structures.

Key to Alumalure success—strong, light aluminum and design innovations by Alcoa . . . precision finishing by NSE Signs & Stampings . . . unmatched protection and paint adhesion by Amchem Alodine chemicals.

With color matching standards a prime-requisite, assurance of paint adhesion on Alumalure sheets is a vital necessity to protect customers who buy the product, months later reorder and expect exact color match. Results to date on millions of square feet of Alumalure processed—no paint failure or rejects involving chemical treatment by Alodine!

Full time NSE and Alcoa inspectors watchdog every foot of sheet throughout the production cycle. For chemical pre-treatment Alcoa specifies high standards of Government Specification MIL-C-5541. NSE selected and uses Alodine for "the best metal preparation treatment you can find." NSE management states emphatically, "We don't have paint failures. We don't have customer rejects."

If you want—corrosion resistance, lasting paint adhesion, rejects slashed to the vanishing point and sales ammunition that helps sell products—investigate Alodine, the industry's first and today's standard conversion coating chemical for aluminum!

*Amchem's trademark for its conversion coating chemical for aluminum.
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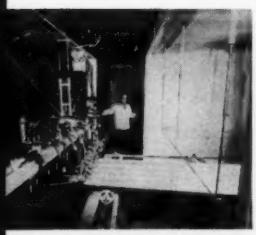
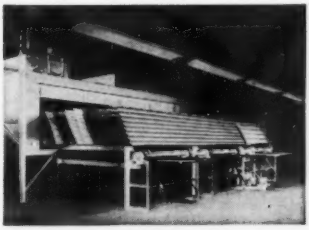


After treatment with Alodine, a ribbed siding sheet is painted employing Ransburg electrostatic paint equipment.

NSE Executive V.P. John Montgomery (left), Plant Manager R. Cater Lee, and Alcoa (quality standards) specialist J. Shea (right), inspect "3D" Alumalure sheet.



The massive equipment shown here is an ultra-modern, newly installed Lanly oven for handling Alumalure sheets.

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Write for free bulletin 1424C, outlining the uses and many different types of Alodine available for aluminum fabricators and processors.

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editorial

Automotive Corrosion: Credit and Criticism

G. H. Poll, Jr.
Associate Editor

We feel compelled to comment on the study of automotive-corrosion problems reported in the February, 1961, issue of *Corrosion,* official publication of the National Association of Corrosion Engineers.

In two articles ("Automobile Body Corrosion Control Problems," by Harold A. Webster, and "A Close Look at Some Auto Corrosion Problems," a staff feature), *Corrosion* indicted finishers and the automotive industry in words and pictures.

Some of the criticism is justified. Cars built in recent years, with their many sculptured areas, ridges and boxes to trap water and promote corrosion, have been subject to rust formation and unsightly premature holes in their fenders and rocker panels. And as *Corrosion* points out, the plated parts of the past ten years suffered from a severe nickel shortage during the early fifties; we know that the industry also suffered from lack of a reliable accelerated test that would predict quickly whether a part would withstand corrosion in actual service.

But these latter conditions do not exist in 1961. Therefore, when the article in question shows a severely corroded 1954 automobile part, we feel that this does not accurately picture current conditions. The part in question was, of course, plated during 1953 when our industry was suffering from an acute nickel shortage brought on by the Korean War.

Like *Corrosion,* we are deeply concerned about the severe corrosion that blossoms on our comparatively new automobiles each spring after a winter-long bath in de-icing chemicals.

We take issue with *Corrosion,* however, in its inferences that foreign cars have superior finishes. Frankly, we're pretty tired of hearing about the "superior" products that come from European plants.

First of all, we question whether the average bumper on a foreign car would pass the Cass or Corrodkote tests now required by American manufacturers. If you believe there's anything sacred about these bumpers, take a look at the bright work on the next few you see running about the streets. We have, and most are corroded more than their American counterparts. (See accompanying photographs.)

We believe that the superiority of American plated products will become more obvious with each passing year. Our double-nickel and double-

Bumper on this foreign car is badly pitted after service in Illinois. Body was in good condition.

Hub cap from same automobile also showed advanced corrosion, as did plated zinc die casting used for door handle. There was practically no plating left on it. (Photographs by PRODUCTS FINISHING.)

chromium systems are consistently showing up with better ratings in accelerated tests and actual service.

According to Dr. M. M. Beckwith, Harshaw Chemical Co., "There is no doubt that the duplex nickel system is better from the basis metal corrosion standpoint." ("The Development of Duplex Nickel Plating Process," *Plating,* April, 1960.)

Summing up the discussions held during the American Zinc Institute Symposium on Plating Zinc Die Castings in November 1959, Dr. Schrade F. Radtke said, "We feel that we have reached a milestone here—progress has been made. We have established that improved plating systems have given us a new standard of quality." (PRODUCTS FINISHING, December, 1959, p. 164.). This view is shared by a number of leading technical men in the American finishing industry.

Thus we feel that we are much closer to the day when we can say with assurance that our chromium-plated parts will stay perfect for the lifetime of the car—rather than just having the promising assurances from our finishing engineers that accelerated tests have indicated that improved performance can be expected.

European auto makers have not been using duplex nickel or chromium, but are now investigating this process quite seriously, according to Myron B. Diggin, Hanson-Van Winkle-Munning Co., who recently reported on his travels in Europe before a meeting of the American Electroplaters' Society. This fact leads us to believe that European plated products have not given good service in our winter salt baths. Therefore European manufacturers now want to improve plating quality, too.

Thus we find it hard to swallow when *Corrosion* says "An example" (that's something to follow, isn't it?) "of one auto company's efforts to test its brightwork for resistance to corrosion is the three tests used by Volkswagen to determine corrosion resistance qualities of bumpers, hub caps and other chrome parts." Why not consider the many specifications and tests developed by The American Society for Testing Materials? What's wrong with the Cass test or the Corrodkote test as examples? According to Walter L. Pinner of McGean Chemical Co., the cost of developing these tests to date has been about a half-million dollars, (not to the sponsor, American Electroplaters' Society, but in scientists' time contributed by companies in the industry).

On the other hand, a commonly used European accelerated corrosion test does not appear to show good correlation with actual service life. Further, the test results obtained tend to favor a copper-nickel-chromium system over a duplex nickel chromium system. M. R. Caldwell and L. B. Sperry, Doehler-Jarvis Division of National Lead Company, commented on this fact at some length in "Proceedings of the American Electroplaters' Society: 1959."

The Cass and Corrodkote tests correlate well with outdoor exposure.

Nor does *Corrosion* point out that most European manufacturers extensively sand prime paint coats to gain a glass-smooth appearance. This practice, which is minimized in American automotive plants, reduces the film thickness of the primer and thus the corrosion resistance of the paint finish.

The development of acrylic lacquers and enamels, (limited use began in 1957) which resist chalking and thus last longer, gets no mention either, even though it results in a car that is less likely to have rust peeking through on the roof and hood after a few years. European makers aren't using acrylics very much, either.

Thus we congratulate *Corrosion* for calling attention to the design problems which foster corrosion of automotive parts and we join in the hope that our producers will take heed. Also, we hope that improved methods of preventing corrosion around stainless steel (not "chrome") moldings will be developed.

We agree with *Corrosion* in its feeling that "A survey across America after one or two years' service will be worthwhile to determine the long-term effectiveness of the 'seven-step rustproofing . . .'" (wherein bodies are dip-phosphatized and primed, rather than being sprayed on exterior surfaces only).

While we feel ashamed of the badly corroded examples of finished products shown in *Corrosion,* we also feel that credit should be given where credit is due. And there is available unassailable evidence that the finishing industry has made substantial improvements in recent years. It will continue to make them.

Gerard H. Ball, Jr.

—ASSOCIATE EDITOR

Jelled Plating Barrel Plating

By HARRY J. WEST, Ch.E.
and
RICHARD F. GIESELMAN, P.E.
Westinghouse Electric Corp.
Bloomington, Indiana

Harry J. West

Richard F. Gieselman

Colloidal agents added to conventional plating baths keep parts from impinging . . .

Colloid plating was developed during a research program that was aimed at finding a method to barrel plate externally threaded parts and heavy precision parts without injury.

By adding a colloidal agent, in this case sodium carboxy methyl cellulose, carbopol, or methyl cellulose, most types of cyanide plating baths and some caustic and acid baths were jelled to the extent that parts could be plated without damage. In most cases, the addition of the colloid also improved the appearance and the throwing power of the baths. This in turn resulted in better uniformity of plate and made possible better coverage in holes and recesses.

The discovery of this type of plating has now saved this company several thousands of dollars,

has produced a better product, less scrap and increased production.

In a typical zinc cyanide bath, the addition of one of the colloids mentioned resulted in a 50 per cent increase in production. A better plate was obtained. A typical zinc cyanide formulation for barrel plating:

Total sodium cyanide	12.3 oz./gal.
Zinc metal	4.5 oz./gal.
Caustic soda	10.5 oz./gal.
Sodium carboxy methyl cellulose	0.5% by weight

The amount of the colloid to be added (or, the viscosity required to keep the parts from being damaged), varies with the type of part to be plated. In some cases 0.5 per cent by weight is satisfactory; in other cases, possibly 5.0 per cent by weight is required.

The beginner should try adding the colloid in a beaker, using an original bath composition and a mechanical stirrer. After the desired amount has been determined, a

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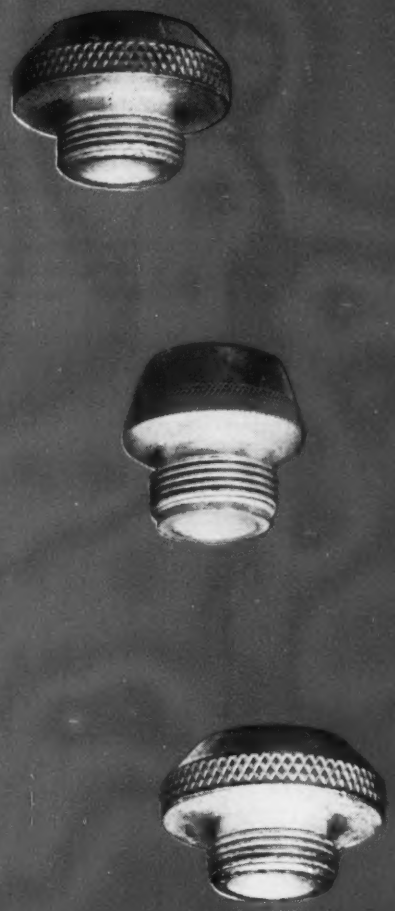

Fig. 1—These ¼-pound copper parts were silver plated in barrels. The two parts above and below were plated in a conventional barrel plating solution, and show that they have been damaged by contact during plating. The part in the center was plated in a silver plating solution containing a colloid, and it shows no damage.

"The temperature of the bath has a considerable effect on viscosity."

Brookfield Viscometer can be used to check the solution. A visual check usually will be sufficient, however.

In most cases the colloid is difficult to mix into the plating bath, but a little patience and a good stirrer will do the job. One may also use a mechanical blender. It is not recommended that hand mixing be tried, especially with a large amount of solution to be jelled.

Not all cyanide baths require the same amount of the colloidal agent. A cadmium bath requires a smaller amount of the colloid. In this case the caustic content is the determining factor. A typical formula for cadmium is as follows:

Sodium cyanide	13.0	oz./gal.
Sodium hydroxide	0.5	oz./gal.
Cadmium (as CdO)	2.0	oz./gal.
Cellulose	0.25%	by weight

In cadmium plating solutions, the higher the caustic content, the less cellulose compound is required. This is not true in all cyanide baths.

The temperature of the bath has a considerable effect on the viscosity. Therefore, if a heated solution is used, the colloid should be added to

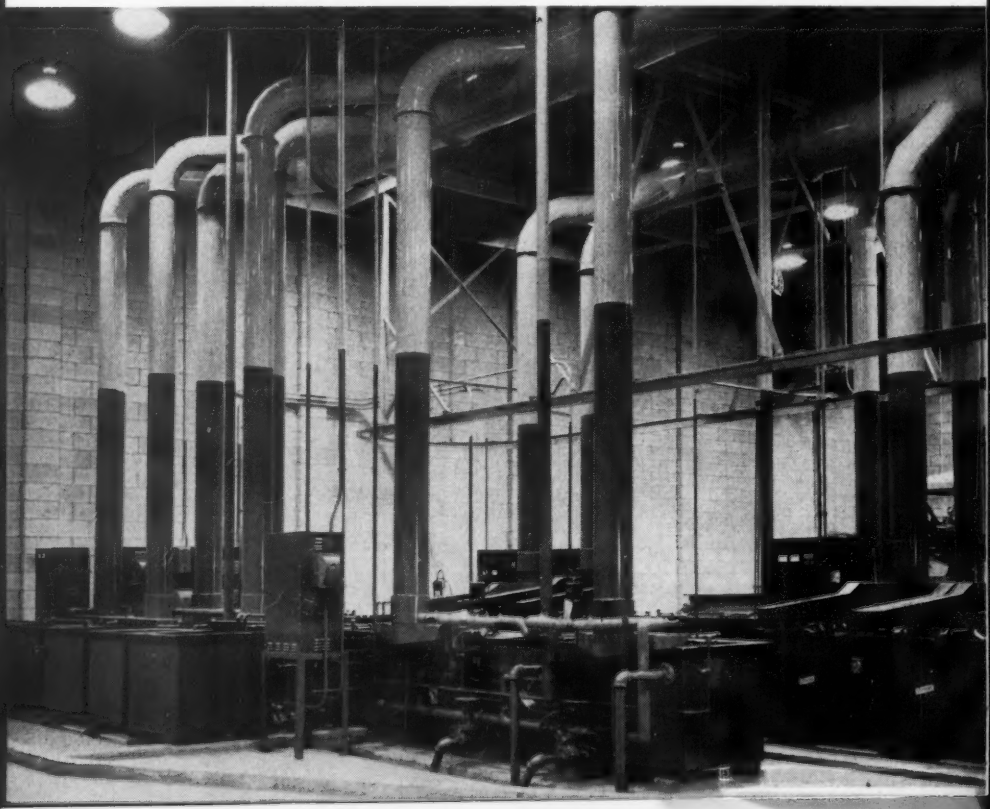

Fig. 2—Overall view of the area where colloid plating is being performed in the Westinghouse Bloomington, Indiana plant.

the bath at the normal operating temperature. As the solution cools, the bath becomes more viscous.

It has been found that the addition of a cellulose agent is also beneficial in precious metal plating, especially in silver plating. The solution becomes a better conductor and the efficiency rises. A typical formula for silver is as follows:

Silver cyanide	4.0	oz./gal.
Potassium cyanide	7.5	oz./gal.
Potassium carbonate	6.0	oz./gal.
Metallic silver	3.0	Troy oz./gal.
Free cyanide	5.0	oz./gal.
Sodium carboxy methyl cellulose	1.0%	by weight

This formula can be changed to suit a specific problem. Over-jelling must be avoided. It is possible to add too much cellulose and cause anode reactions which will block the current flow. One may use the cellulose for either jelling to retard damage to parts, or for increased conductivity for faster plating. Sometimes one must be sacrificed to achieve the other.

It is also possible to use a cellulose compound in acid plating solutions. The type of acid solution being used may require a different amount of cellulose, or a different type of colloid. This, of course, applies to still

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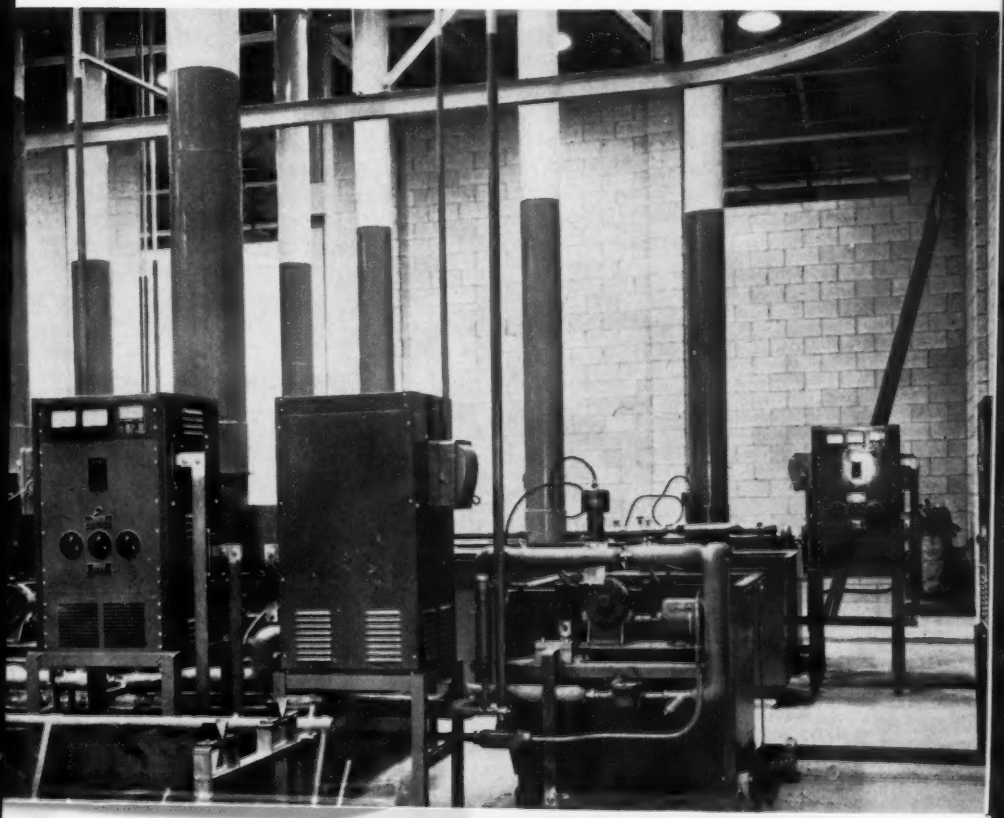


Fig. 3—Closeup view, showing barrel loader, rectifiers, temperature controls, and plating tank. (All photographs by the authors.)

and barrel plating alike. A typical formula for a nickel plating solution is as follows:

Nickel sulfate	32.0 oz./gal.
Nickel chloride	6.0 oz./gal.
Boric acid	4.0 oz./gal.
pH	5.0
Temperature	Room
Sodium carboxy methyl cellulose or sulfoethyl-cellulose	1.0% by weight

For strong acid solutions sulfoethyl cellulose is better, because it tends to break down less rapidly than other cellulose materials. Acid solutions may show a tendency to separate after standing when a cellulose compound has been added. This does not harm the solution or its ability to plate. However, an excess should be avoided. After nickel plating, parts may show signs of an orange peel effect, but thorough rinsing will correct this appearance.

Since the cellulose compounds do not readily break down when heated and cooled repeatedly, they can be used in alkaline tin plating also. The throwing power of the solution is increased, and appearance is improved. A typical formula for tin:

Sodium stannate	14.0 oz./gal.
Tin metal	5.6 oz./gal.
Free sodium hydroxide	1.3 oz./gal.
Sodium carboxy methyl cellulose	2.0% by weight
Temperature	175 deg. F.

This solution can be operated at a much lower temperature. A good plate was obtained at 140 deg. F., and a fair plate was formed at room temperature.

Cellulose compounds have also been added to copper plating solutions with equal success. A typical formula is as follows:

Copper cyanide	3.0 oz./gal.
Sodium cyanide	4.5 oz./gal.
Sodium carbonate	4.0 oz./gal.
Rochelle salt	5.0 oz./gal.
Free cyanide	1.0 oz./gal.
Sodium carboxy methyl cellulose	0.5% by weight
Temperature	150 deg. F.

Outline of a typical sequence of operations is as follows:

1. Degrease or electroclean.
2. Cold water rinse.
3. Acid dip in 50 per cent muriatic acid at room temp.
4. Cold water rinse.
5. Electroplate (barrel). Voltage, 6-12 volts for cadmium (cadmium will yield about 0.001 inch thickness per 30 minutes plating time), zinc or tin; 1 volt for silver, after a strike of 6 volts for one minute (strike may also contain a colloidal agent if desired). Voltage for nickel: 4-6 volts; copper, 4 volts. Current density varies with amount of colloidal agent present in bath.
6. Rinse in reclaim tank at 140 deg. F.
7. Cold water rinse.
8. Hot water rinse.
9. Centrifuge to dry.

Note 1: It is advisable to try "jelled plating" on a laboratory scale first. For tank plating, continuous agitation should be used.

Note 2: Since the colloid plating solution is viscous about 10 per cent more rinsing time is required than for a normal plating bath.

Refrigerated Dip Tank Solves Finishing Problem

It increases pot life of catalyst-type primer to one week . .

By GILBERT C. CLOSE

A simple, low-cost refrigerated dip tank is saving some $200,000 a year in priming small interior parts for the DC-8 jet transport airplane at the Long Beach, California Division of Douglas Aircraft Company. The need for this little dip tank, only 6 feet long, 10 inches wide, and deep enough to inundate a part 24 inches long, was generated by the catalyst-type fuel-resistant primer used on these parts.

The DC-8 jet transport employs a fluid called Skydrol in its extensive hydraulic system. Leakage or spillage of even a drop of this fluid onto a conventionally finished surface immediately ruins the finish. This necessitates use of the catalyst-type primer (trade name—Cat-A-Lac) which dries to a glass-like hardness and is impervious to Skydrol.

This primer contains a large percentage of epoxy resins, and polymerizes soon after it is applied. It also will start to polymerize in bulk

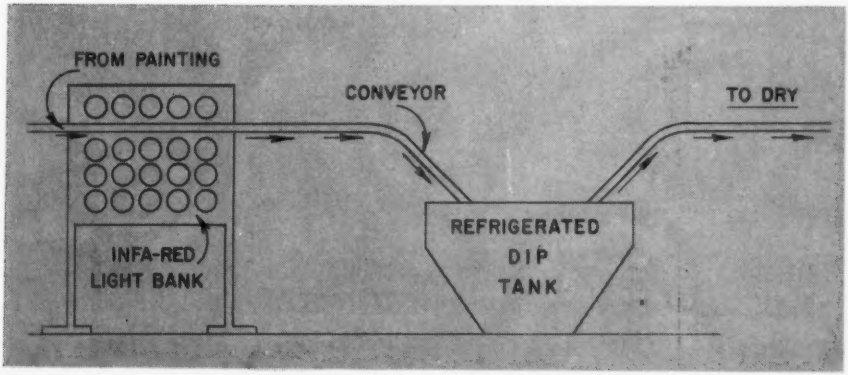


Fig. 1—Drawing shows basic features of equipment used for applying catalyst-type primer.

quantities when kept at room temperature for more than eight hours.

At the beginning of the DC-8 production program, all interior parts were hand sprayed with this primer, which caused several difficulties. To begin with, while hand spraying the smaller parts, approximately 90 per cent of the primer (costing $7.00 a gallon) was lost in overspray. This overspray polymerized almost immediately upon contact with the booth structure and plumbing and had to be removed by hand.

"For a while, we were using more plumbers than painters in the booths where this primer was being sprayed," one operator points out.

A second difficulty arose from the primer's tendency to start polymerizing in bulk quantities about eight hours after the catalyst was added. This made it necessary to mix the primer in very small lots, approximately a gallon at a time, and at the end of an eight-hour shift, all primer remaining in the paint pots had to be discarded.

It was known, of course, that lower temperatures would retard polymerization. A test lot of the catalyzed primer was stored at zero deg. F. for

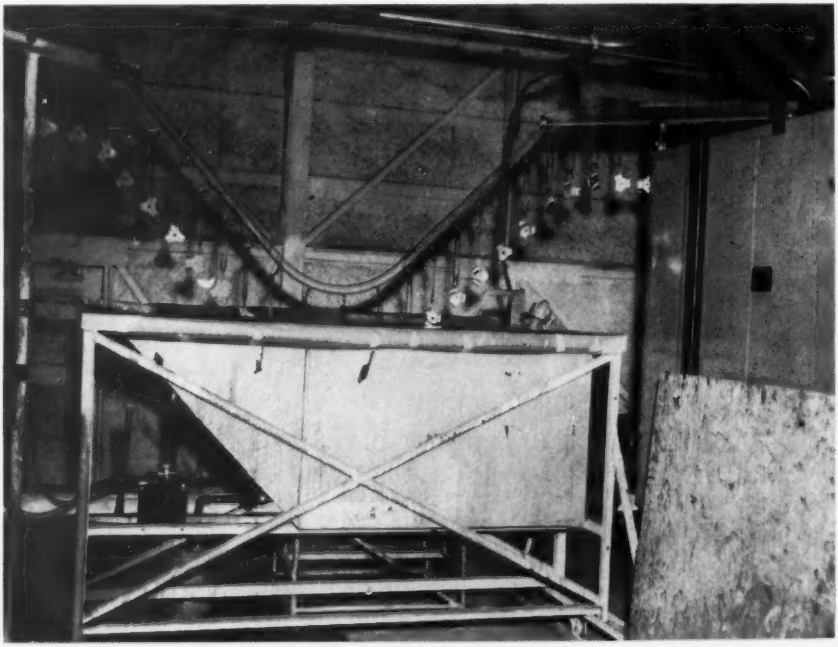


Fig. 2—Side view of refrigerated dip tank used for dip application of catalyst-type fuel-resistant primer. Note that the small dip tank is on a roller track so that it can be moved out of the way when it is not in use. This provides conveyor clearance for larger parts.

two weeks and was still in usable condition. But when test panels at room temperature were dipped into the cold primer, the runoff was uneven, resulting in a coating that was thinner at the top of the test panel than it was at the bottom.

In additional tests, the test panels were heated prior to dipping in the cold primer. The heat in the panels caused such rapid polymerization that runoff was nil and a very even coating was obtained. These results provided an obvious solution to the problem—a refrigerated dip tank and heated parts.

Douglas Plant Engineering was then called upon to design and build prototype equipment for dip priming these parts. Because of the high cost of the primer, and the high cost of filling a large dip tank, it was decided to continue hand spraying of larger parts and panels, and limit dipping to parts which would fit into a dip tank of the above dimensions.

Figure 1 illustrates the general principles in the equipment. The parts, conveyed from left to right, first pass the bank of infrared lamps which heats them to approximately 130 deg. F. Then they continue immediately into the dip tank where the primer is kept refrigerated at 32 deg. F. Experience has proved that at 32 degrees F., the primer will remain usable for approximately one week. But to avoid any risk, the tank is emptied each morning to fill the paint pots which will be used that day in hand spraying the larger parts.

As already mentioned, the tank is 6 feet long, 10 inches wide, and just deep enough to inundate a part 24 inches long. A 5-h.p. compressor refrigerates it. The refrigerating coils

Fig. 3—End of refrigerated dip tank. Parts are entering from left. Note infrared lamp banks between which parts must pass just prior to entering dip tank. Lamps raise temperature to 130 deg. F. (Photos courtesy Long Beach Div. of Douglas Aircraft Co.)

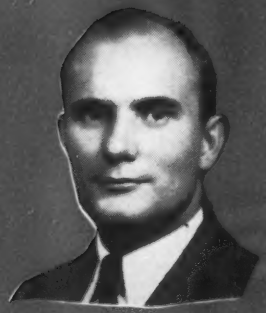
are wrapped tightly around the tank, then covered with a layer of thin metal which forms a second liquid-tight container for the coils only. This container is filled with brine. The brine assures 100 per cent cold contact with the outer surface of the dip tank and provides maximum efficiency from the refrigerating coils.

Beyond the refrigerated dip tank, the parts either pass through an oven for a 15 minute bake at 230 deg. F., or are air dried for 24 hours before handling.

The success of this initial and rather small prototype installation has lead Douglas engineers to consider a much larger refrigerated tank wherein larger parts could be dip primed in reactive materials.

Multiple-Purpose Anodizing

It eliminates raking of tanks for lost parts, supplies air agitation . . .



By
JACK W. PETERSEN
Chemist and Finishing Supervisor
The Adams and Westlake Company
Elkhart, Indiana

Parts that drop to the bottom of anodizing tanks during processing have always been a source of irritation in plating and anodizing plants. If left in the tank for any length of time, their value as parts is destroyed, and in the process of dissolving, they may contaminate the solution.

The alternative, raking the tank to recover the parts, has many disadvantages: it can damage the tank, especially if lined; it can damage accessory equipment such as air lines, electrodes, coils, temperature controls; it's time-consuming and adds to labor cost; and it is dangerous to the workers, especially if tanks are deep or pieces being removed are large.

Engineers at Adams & Westlake recognized this problem in designing the company's new quarter-million-dollar anodizing line for finishing aluminum windows and curtain-wall components. Their solution is interesting because it eliminates raking, supplies air agitation for the tanks, and protects the lead cathodes.

Basically the unit that does these things is a large basket that can be

Liner for Tanks

lifted from the tank by a hoist when parts fall in. Its framework incorporates piping to supply compressed air at the bottom of the tank for agitation. The sides are neoprene rubber mesh, which keeps parts away from the cathodes during anodizing, helps to prevent short circuits.

In selecting the material from which to construct the framework of the basket liner, plastisol-coated pipe was rejected because of the possibility of cutting through the coating and exposing the basis metal to the anodizing solution. Two other possibilities were considered: using wood such as cypress or yellow pine reinforced with Type 316 stainless steel gusset plates and bolts; and using rigid polyvinyl chloride pipe. Saran pipe was not considered at this time but the author feels that it could offer some practical possibilities.

Rigid polyvinyl chloride pipe was the material selected for the basket framework. Although it is more expensive, PVC pipe is lighter in weight and is hollow, which allows the framework to carry air to the bottom of the tank. Numerous small holes were drilled along the two lower longitudinal members to serve as escape ports for the air.

Compressed air was then supplied to each end of the basket liner by means of snap-on air connections.

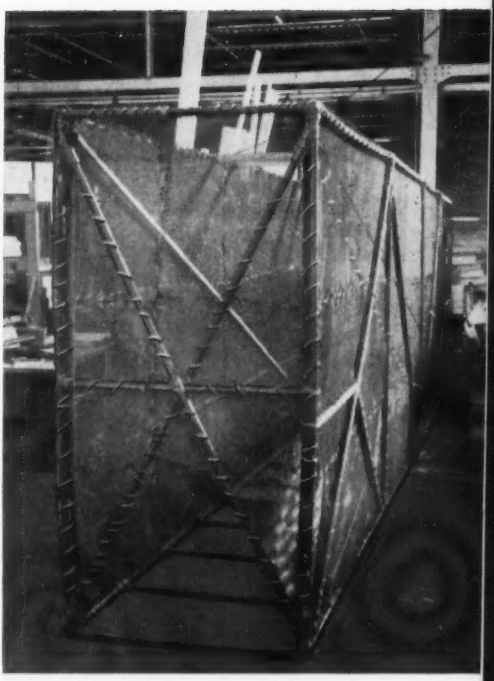


Fig. 1—Basket liner during construction shows how the rigid polyvinyl chloride pipe is covered with a neoprene rubber mesh.

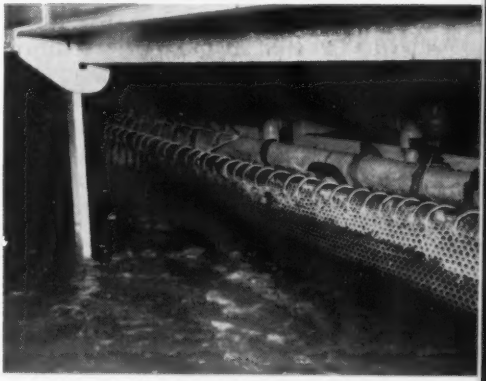


Fig. 2—Closeup shows how neoprene mesh (RP Neotex) protects cathodes, helps prevent short circuits. (Photographs by the author.)

These connections allow quick disconnection when the basket liner is lifted from the tank by an overhead crane.

In order to gain some additional strength and support for the framework, a solid, round aluminum extrusion was inserted inside each of the top horizontal members for their entire length. The bottom of the basket liner was made of perforated fiberglass sheet.

The neoprene rubber mesh used for the sides of the basket was selected after considering plastisol-coated expanded metal, and wood and plastic latticework.

In tests, the neoprene mesh (a product called RP Neotex, made by Research Products Corporation, Madison, Wisconsin) gave good service in 15 per cent sulfuric acid anodizing solutions. Since this netting material is all neoprene except for its thin paper core, it eliminates the disadvantage found in using coated, expanded metal—the possibility of cutting through or tearing the coating, thus exposing the metal to attack by the anodizing solution. If the neoprene netting is torn or broken, it can be mended by simply tying or weaving the loose portions together with rubber or plastic tubing.

The liners have now been in service for several months and have proven very effective both in eliminating raking for lost parts and in protecting the lead cathodes. Protection of the cathodes is desirable because it aids in preventing shorts between the work and the electrodes.

The tanks at Adams and Westlake are 30 feet long and seven feet deep. The basket that is now used for lining them is shown in Fig. 1. It is possible that a similar arrangement would also be helpful in plating installations.

Coming Up

Watch for these useful articles in coming issues of PRODUCTS FINISHING, the leading publication in the finishing field:

New Painting System Cuts Costs for Vending-Machine Manufacturer
Conveyor and modern finishing equipment increase production, reduce labor costs . . .

Tin Plating of Shells
Details of a new tin-plating method that replaces a solder-coating process . . .

Outdoor Exposure Confirms Laboratory Tests on Thicker Chromium Plate
Seashore exposure shows that corrosion resistance is better . . .

Lightweight Ovens Hang from Conveyor Rail
Aluminum-skinned ovens can be installed or moved easily . . .

Precision Buffing of Weights for Analytical Balances
Specially designed automatic buffing machine smooths the surface of delicate weights for analytical balances . . .

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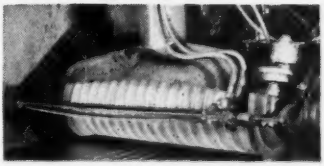

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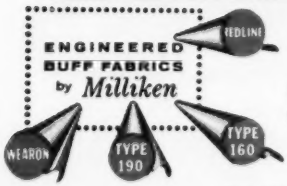

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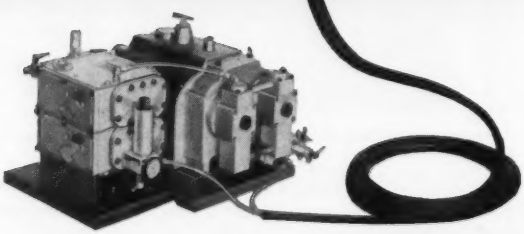

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The most advanced Airless
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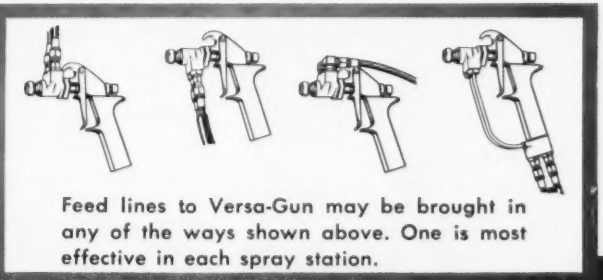

Feed lines to Versa-Gun may be brought in any of the ways shown above. One is most effective in each spray station.

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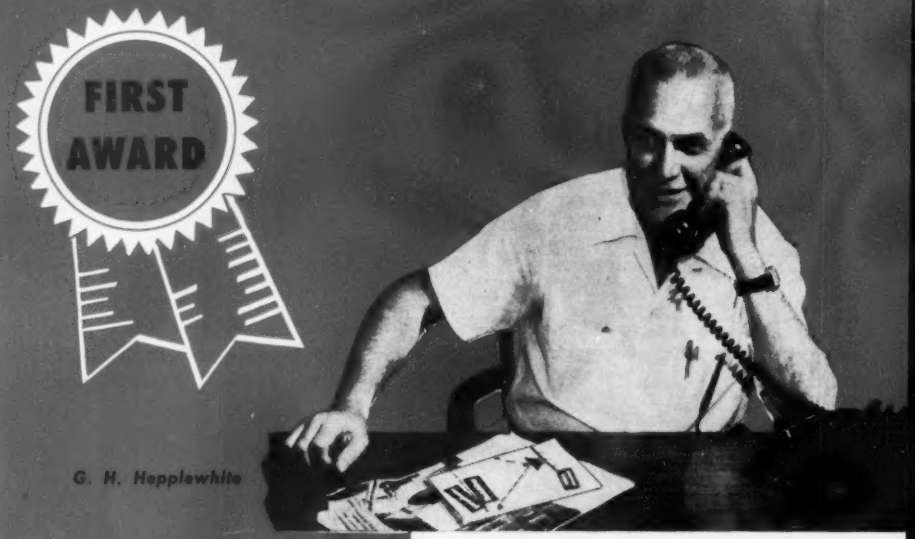

G. H. Hepplewhite

Automated Finishing of Hotstream Heaters

Conveyorized system does a better job in half the space . . .

By G. H. HEPPLEWHITE
Factory Manager
The Hotstream Heater Co.
Cleveland, Ohio

Beauty and utility, it is said, go hand in hand. And, so it is with the water heaters which have been produced continuously for 45 years by The Hotstream Heater Co., Cleveland, Ohio.

We at Hotstream take justifiable pride in our company's products. In the plant, at the end of the assembly line, there's a sign which serves as a daily reminder:

"THROUGH THESE LINES PASS THE MOST BEAUTIFUL WATER HEATERS IN THE WORLD."

Hotstream Heaters (gas, oil and

electric) are not only designed for excellent performance, but beautifully designed, too. The appealing and lasting finish is important on our products.

More than 15 years ago, when we were faced with increased production schedules, we replaced our five hand spray booths with two Ransburg No. 1 electrostatic systems. We have always strived for quality improvement. And until we put in an electrostatic system, our finishing was dependent upon the whims and enthusiasm of the operators. We were able to achieve better quality control with the electrostatic method. A reduction in overspray was noted immediately.

In March, 1959, we modernized our plant. We put in a new 750-foot overhead chain conveyor and washing operation, consisting of phosphate cleaner — Oakite CrysCoat — drain, cold water rinse, drain, chromic acid bath, drain and hot air dryer. The two Ransburg No. 1 systems were replaced by one Ransburg No. 2 Process unit, and we installed a new electric oven.

Now our finishing operations are carried out in a compact area of less than 1500 square feet. Formerly we used more than double that amount of space.

Hotstream Heaters are presently turned out in 52 distinct models. They range in size from 6 gallons to 120 gallons and include both cylindrical and cabinet type styles. We paint in five colors: white, blue, green, red and gray.

Our controls to maintain a constant coverage of 1.5 mils to 1.8 mils are few and simple.

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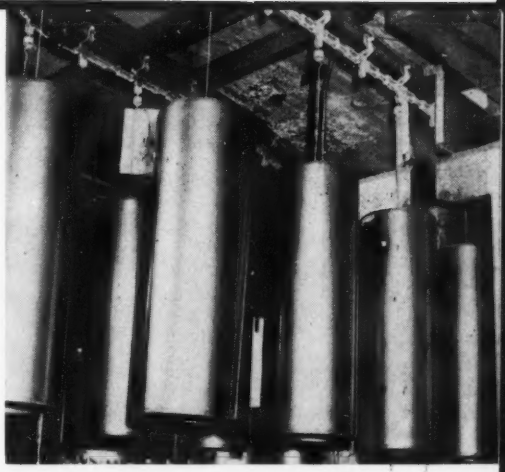
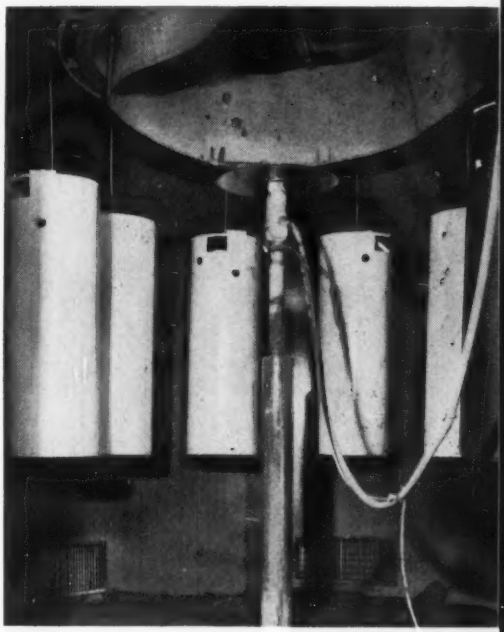


Fig. 2—Water heater jackets enter the washing and phosphatizing machine at the right and are prepared for painting in the four-stage unit. CrysCoat No. 89 is used in the first stage and is followed by rinse, chromic acid bath, rinse, and hot-air drying.

Fig. 3—Enamel is applied uniformly as the rotating water heater jackets loop around the reciprocating and spinning No. 2 Process disk atomizer built into the floor.



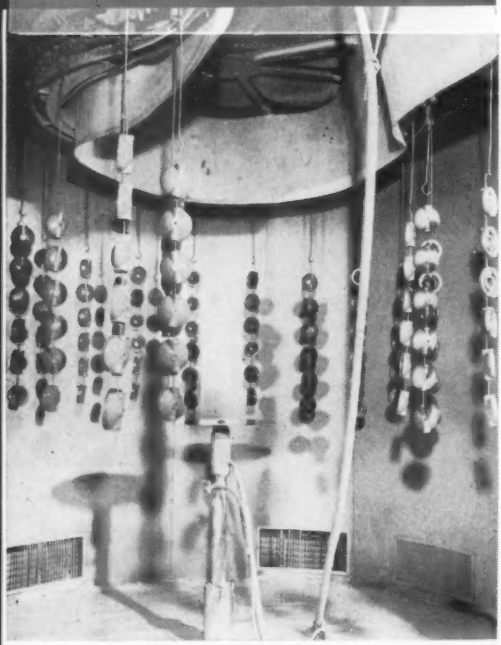


Fig. 4—Smaller parts like these cast aluminum covers are hung six to a holder for painting. No. 2 Process unit's shroud is cleaned once a week, since overspray is minimum.

Control #1—Determine specific gravity of mixed enamel.

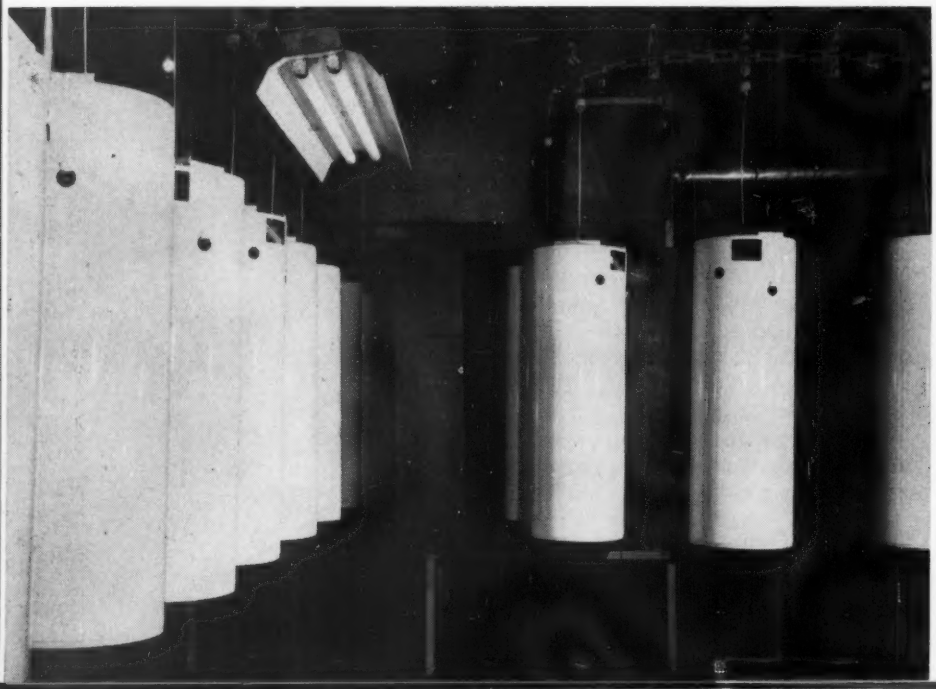
Control #2—Speed of conveyor in feet per minute.

Control #3—Speed of fluid pump in cc. per minute.

Control #4—Speed of reciprocator in strokes per minute, depending upon length of ware being processed.

We paint parts of various sizes and shapes. These range in size from 3-inch discs, which are hung 36 to a fixture for painting, to some large cast iron jackets, weighing as much as 90 pounds. The bulk of our production, however, is in jackets and cabinets of 22- and 24-gauge steel.

Fig. 5—Coated ware is shown entering the curing chamber at the left. Conveyor makes a U-turn in the chamber, and jackets exit at right on the way to assembly room.



To take care of the varying tonnage going through our painting system, we installed a variable-speed drive on our conveyor. Then we designed a direct-reading register (in feet per minute) to aid the operator in controlling his finishing operation.

To overcome the variations in relative humidity, we installed a 2-h.p. Cyclone blower, getting the input air from our drying chamber and blasting it against the ware. This also creates a desirable turbulence in the drying chamber.

We located our reciprocating Ransburg No. 2 Process unit as close as possible to our drying chamber, so that the ware is hot when the first enamel mist is applied. This we find beneficial to the flow and adherence to the finished ware.

The ware is rotated as the conveyor makes a loop around the floor-mounted, 15-inch reciprocating disk. After the exit of the ware from the shroud, the wet-enamel-pieces travel about 45 feet before entering the curing chamber. We feel this gives us a smoother finish without bubbles or craters, because evaporation of the thinners is gradual and not as violent as if they were expelled under heat.

Oven temperatures range from 325 to 375 deg. F. There is a 50-foot U-shaped track in the quartz tube oven.

As to savings in our cost of finishing, we now have had a year and a half experience and have concise figures which are actual and not theoretical.

Each Thursday, we run a performance test on white heater jackets to

(continued)

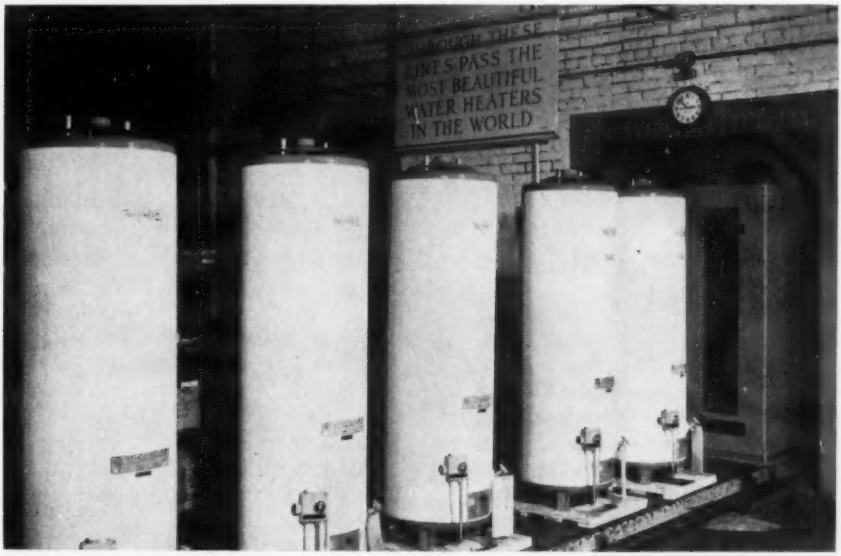


Fig. 6—After assembly, the finished water heaters move along on a belt conveyor to shipping. Note the sign on the wall over the heaters. (All photographs by the author.)

"double-check" efficiency of application. Considering only the virgin material — Arco's enamel — we run between 500 and 570 square feet (actual) as against the enamel supplier's 609 feet (theoretical). That figures 82 to 93 per cent theoretical efficiency in our operation.

Being doubting Thomases at heart, we occasionally measure overspray of our 5 colors, together with the Vincote coating on the shroud. We find it measures 40 to 60 mils after a week's operation. In converting this overspray to gallons and comparing it to mileage and usage, we arrive at a figure close to 96 per cent efficiency.

We are very happy with our modernized, automatic finishing operation, because we are improving quality by eliminating many differentials in human behavior. We now get a consistent and uniform finish, and we are able to meet our varied and ever-increasing production schedules.

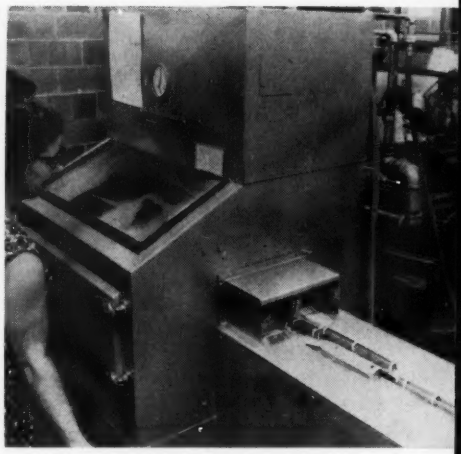
With our present automated finishing setup, I sometimes wonder if the classification of our operators should be changed to "watchmen."

★ ★ ★

Wet Blasting Aids in Printed-Circuit Manufacture

A wet-blast process utilized by Melpar, Inc., cleans leads in printed-circuit board assemblies at rates up to 50 per cent faster than former methods without additional labor.

One of the most vital areas of cleanliness in circuit board assemblies is the solder connection of the component lead to both the inside wall of the plated-through hole or resistance-fused eyelet, and to the etched circuitry. For that reason, all component leads are cleaned and retinned prior to assembly.



Wet blasting process at Melpar for cleaning component leads in printed circuit body assemblies has conveyorized handling and rapid-unload provisions. Fixtures grasp the components securely around the center section, completely exposing both leads to the action of the blast gun. By placing components close together, several leads are exposed to the action of the blast guns simultaneously, and distortion is minimized. Unit can clean about 4000 components an hour. (Photo courtesy Pressure Blast Mfg. Co.)

Melpar uses a wet-blast machine made by Pressure Blast Mfg. Co. It was adapted from a standard unit to meet Melpar's specifications. Open arm ports normally positioned in front of the cabinet were eliminated; a side-hinged access door was substituted. Side work-loading doors were transformed into special baffles to allow passage of the conveyor. To the

left, the sheet metal extension cabinet houses the conveyor drive unit and controls, and loading takes place on top. To the right, the triangular-like extension accommodates the conveyor sprocket and serves as the unloading area. All finishing operations are fully automatic.

The wet-blasting process is conducted in a completely enclosed stainless steel cabinet. An abrasive is agitated into a homogeneous water-grit mixture, forced out of a blast gun at high velocities by compressed air.

The machine is capable of handling approximately 4,000 components an hour in slave carriers. It removes potting films, grease, tin/lead oxides and other foreign matter uniformly and precisely without damage to component body or leads.

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Phosphate coating reduces scuffing and scoring, improves corrosion resistance . . .

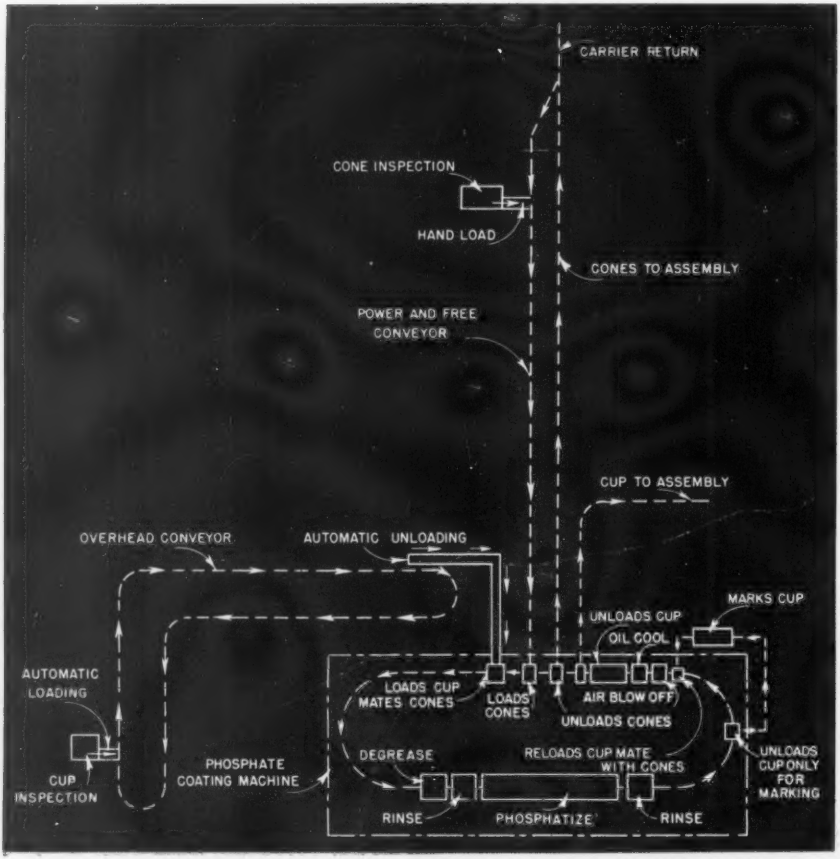

Fig. 1—Layout of Timken's line for phosphatizing railroad bearings to reduce scuffing, scoring.

Protection from corrosion has long been a problem for users of bearings. Within a few weeks after manufacture the bearings may be in use or, if they are to serve as replacement parts, they may be stored at the user's plant for anywhere from a few weeks to a few years. During storage the bearings must be protected from corrosion.

Timken Roller Bearing Company's answer to this problem is a phosphate protective coating.

Stamped steel cages for Timken bearings have been phosphatized for 30 years. Several years ago Timken began phosphatizing the bores of cones on roll-neck bearings. Company metallurgists suggested this treatment to reduce scuffing and scoring of roll necks.

Results were so good that now all four-row roll neck bearings are being phosphatized—not only the bores, but all bearing surfaces.

In 1958, the Timken Company opened a new automatic bearing plant in Columbus, Ohio, for the manufacture of Timken "AP" (All Purpose) Railway bearings. Included in the automatic equipment was an automatic phosphatizing line.

The line was designed and developed by Timken Company engineers in cooperation with the Detrex Corporation, Detroit. Timken Company engineers specified the company's

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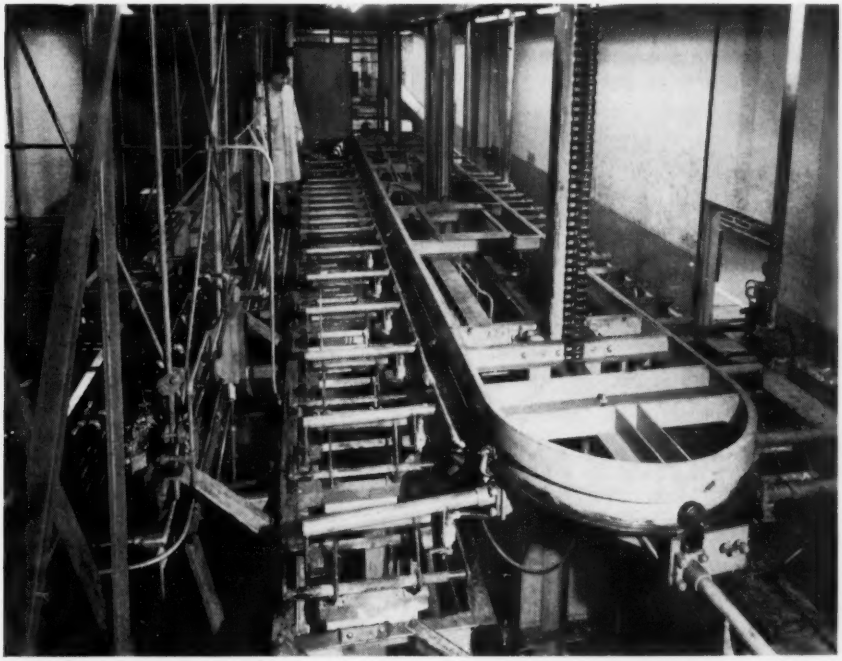
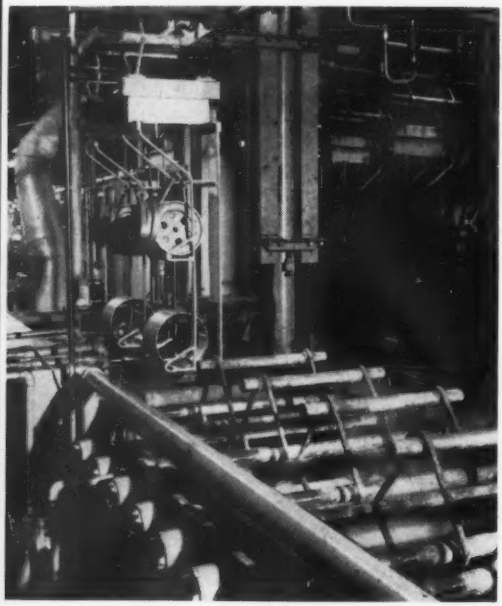


Fig. 2—Overall view of the conveyorized phosphatizing line in the "down" position.

Fig. 3—Cone backing rings and axle end caps are loaded and unloaded at this station.

Fig. 4—Carriers emerge from cleaning solution and transfer to phosphatizing station.



needs and Detrex manufactured accordingly.

The Timken "AP" railway bearing is a complete, pre-assembled and pre-greased unit ready for mounting on railway car axles. The components of all six sizes of these "AP" bearings are phosphatized on all surfaces except for the rollers and the seal cases.

The equipment does the following jobs: cleaning and degreasing, phosphatizing, hot water rinse, printing of cup, re-rinsing in hot water, drying or blowing water from cup's undercut, and a mineral seal oil dip.

Thirty-three carrier racks move the bearing components through the seven processes and 33 machine cycles are required for the complete operation. Each rack carries one cup, two cones, a cone backing ring and an axle end cap.

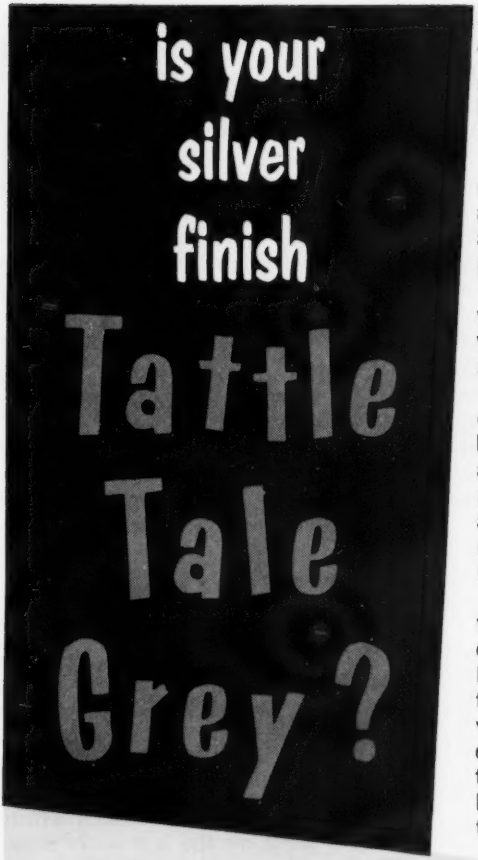
A cycle takes one minute and 30 seconds. It takes 50 minutes for the contents of each carrier to run through the 33 cycles.

Cups coming from the grinding line are inspected, gauged, and etched with a serial number before being placed on an overhead conveyor which automatically loads them on the phosphatizing rack. Cones are inspected and gauged but not etched. They are loaded on the phosphatizing rack by hand.

Axle end cap and cone backing ring are purchased parts not manufactured by Timken. They are loaded on by hand at the same station used for cone loading.

Once components are on the carrier they are conveyed automatically into the machine.

The machine is hydraulically powered. A series of electric limit switches and timers control the movement of the carriers. They move



Silver finishes should be bright. They should have lustre and sparkle. Do your silver finishes have these qualities or are they "tattle-tale grey"?

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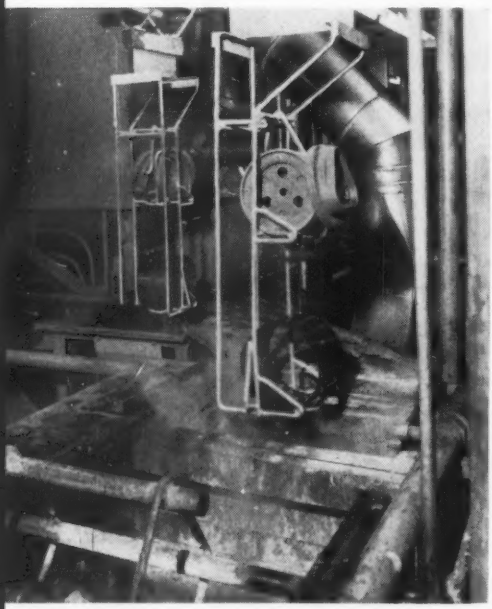
at 1½-minute intervals. The machine raises the carriers, moves them forward to the next station, sets them down, disengages them, backs up and pushes them forward in the degrease, phosphate and mineral seal oil tanks; then it engages them again to start a new cycle.

The first operation is degreasing. The trichlorethylene degreasing solvent is heated to 175 deg. F. A still keeps the solution clean.

After being degreased the parts go into a 15-cycle phosphatizing operation. The phosphatizing solution is heated to 185 deg. F. by two groups of electric coils. These two groups are controlled by timers which momentarily switch from one group of coils to the other. This rise and drop in temperature of the coils causes them to expand and contract, thus flaking off any phosphatizing particles which might tend to cling to them. Thermostats keep the temperature within the preset range.

Fig. 5—Product being transferred from phosphatizing solution into water rinse tank.



The units coming out of the phosphatizing solution pass through a hot-water rinse which is maintained at a temperature of 200 deg. F.

After the hot water rinse, the cups (only) are unloaded automatically. The carrier lowers into an unloading station and discharges the cup onto a conveyor belt that carries them to a chute. Coming down the chute, the cup rolls over a limit switch, tripping a marker die which re-inks the die. The cup then rolls over the die and is marked with the phrase, "This bearing rolls the load" and with a large imprint of the name, "Timken." The cup then rolls forward to the carrier ahead of its original carrier. All this happens while the machine is going through its 1½-minute cycle.

The carrier is then dipped into another hot-water rinse which removes any phosphatizing solution remaining on the part. Then the part is blasted with air to remove moisture left on parts by the hot water rinse. Drying takes up one full cycle.

The carrier then goes into a mineral-seal oil-cooling process for seven cycles. This cools the product to room temperature and permits proper lateral gaging prior to final assembly with other components.

A deLaval Separator separates any water carry-over from the hot water rinse so that the mineral seal oil remains water free.

A refrigerating unit maintains the mineral seal at room temperature.

Cups are again automatically sepa-

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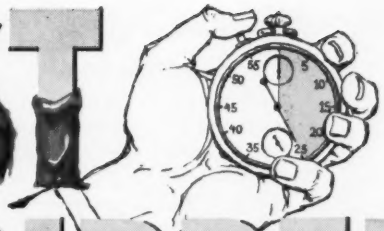
FAST STRIPPERS



- ✓ **FAST, CLEAN WORKING**...unlike caustics or strong acids, these strippers do not dissolve or decompose enamel or lacquer. These strippers break the bond between the metal and the organic coating. Loosened coating then slips off in sheets or shreds.
- ✓ **NON-CORRODING**...our strippers do not attack aluminum, zinc, ferrous metals or any other metal or alloy.
- ✓ **CONVENIENT**...stripped metal may be rinsed with water, dried and refinished immediately.

LEA COLDSTRIP

1. Requires no dilution. Use full strength.
2. No heating required. Use at room temperature.
3. Although toxicity is low, care should be taken to avoid contact with the skin.
4. Minimum ventilation required.
5. Can be strained for continued use.
6. Surface of Coldstrip is self-sealing (reduces evaporation).

LEA SYNSTRIP

1. May or may not be diluted with water, depending upon the film adherence.

Maximum dilution should be 1 part Synstrip to 6 parts water.

2. Can be used cold or heated. Heating to temperature from 160° to 200°F. cuts stripping time.
3. Toxic. Avoid inhaling or contact with skin.
4. Heated solution requires ventilation to remove fumes.
5. Can be strained for continued use.
6. Evaporated water should be replaced to maintain concentration. Baumé readings on a hydrometer will determine the amount of water to add.

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rated from the carrier at an unloading station. They roll down a conveyor chute onto an elevator and are then conveyed to the assembly station. All other parts remain with the carrier, which is automatically discharged to a power-and-free conveyor that moves them to an unloading station. There, parts are unloaded by hand and conveyed to the assembly station.

The present phosphatizing line is in operation on a 24-hour basis. A total of 20,000 car sets per year, or 160,000 bearings are phosphatized each year.

The process has proved very effective in protecting bearings against corrosion in railway service.

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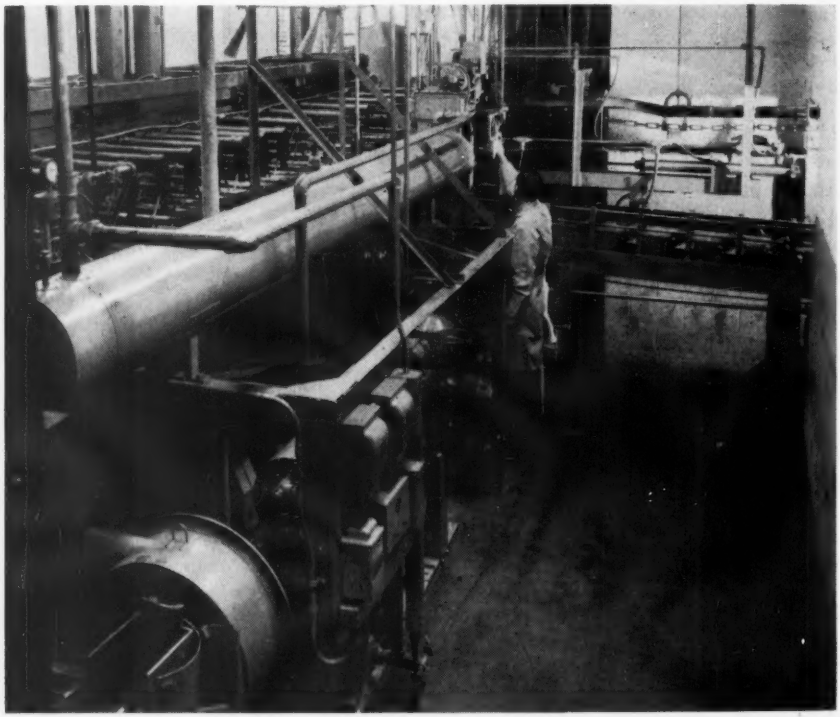

Fig. 6—Temperature of oil-dip used for cooling the bearings is maintained by thermostatic controls. (Photographs courtesy Timken Roller Bearing Co., Canton, Ohio.)

CANNON ELECTRIC improves contact performance with SEL-REX Bright Gold Alloy S-42

Cannon plug-contacts, plated with 60-millionths of Sel-Rex Bright Gold Alloy S-42, were unaffected by exposure to an atmosphere of moist hydrogen sulfide. The greater density of the deposit fully protected the base metal from attack.
SEL-REX BRIGHT GOLD ALLOY S-42
These contacts plated with 60-millionths of conventional 24K Gold, tarnished and roughened after only one hour's exposure to the moist hydrogen sulfide atmosphere. The granular, micro-porous deposit of conventional gold gave little protection to the base metal.
STANDARD 24K GOLD PLATE

Contacts used in world-famous Cannon Plugs must be capable of withstanding corrosion and tarnish, in addition to the punishing effects of repeated engagement and disengagement. The photographs, taken by Cannon in their own laboratory, show why conventional 24K gold plate failed to meet the requirements of this application.

Both samples were plated with 60-millionths of gold over silver plate, and were photographed after an hour's exposure to an atmosphere of moist hydrogen sulfide. The contacts plated with 24K gold tarnished and roughened – those plated with Sel-Rex Bright Gold Alloy S-42 retained their original mirror-bright finish.

Says Cannon Electric Company, Los Angeles: "Our brass contacts plated with Sel-Rex Bright Gold Alloy S-42 offer exceptional protection against both corrosion and friction-wear. Some of the advantages we have demonstrated in our own laboratory, and what they mean to us, follow:

"1. Greater Hardness:- Knoop 140-160 for Sel-Rex Bright Gold Alloy S-42, compared to only 40-50 for conventional 24K gold plate.

"2. Greater Wearability:- The S-42 deposit is smooth and bright. This, in combination with hardness, means that less force is required to separate the mating halves of the connector . . . less wear, less tendency for galling."

"3. Improved Reliability:- Ordinary 24K gold plate is quite granular and exhibits considerable micro-porosity. Tarnish, corrosion of the base metal and early failure in-service of the plated contact is the end result. The Bright Gold Alloy S-42, being a smoother, far more dense deposit, has demonstrated much greater protection against tarnish and corrosion in all the tests we have performed at Cannon.

"At Cannon Electric, Sel-Rex Bright Gold Alloy S-42 has been instrumental in solving wear and tarnish problems encountered in connectors used in aircraft, and intricate missile and electronic components."

The foregoing is just another of our many case histories which prove that: "From Missiles and Rockets to Misses and Lockets – there's a Sel-Rex Precious Metal Plating Process to help you make your product better, more salable."

For other case histories, technical information and application data, ask for ML-1.

Patented processes for plating with Gold, Rhodium, Platinum, Palladium, Silver, and to produce "custom alloys" for your particular requirements.

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Guide To Work Gloves. The Glove Division of the Riegel Textile Corporation has available a selector manual which describes basic types and styles of work gloves to buyers, safety engineers and purchasing agents. The guide has information on basic cuts, cuff styles and other specification detail. It contains tips on many points such as grades of leather, chemical resistance and physical properties of various plastic coatings. Basic features of canton flannel, jersey, leather, terry cloth, neoprene, plastic and rubber coated, hot mill and welders are all covered. A second section contains on-the-job case histories where changes in work glove specifications increased hand protection and lowered glove costs. Available from Riegel Textile Sales, 260 Madison Ave., New York 16, New York.

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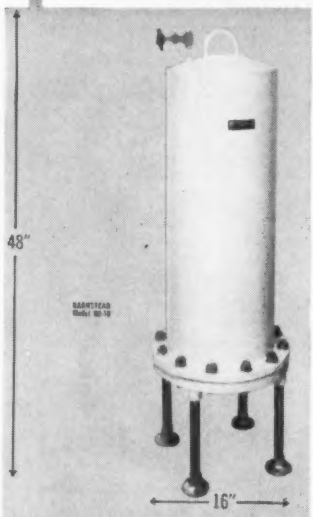

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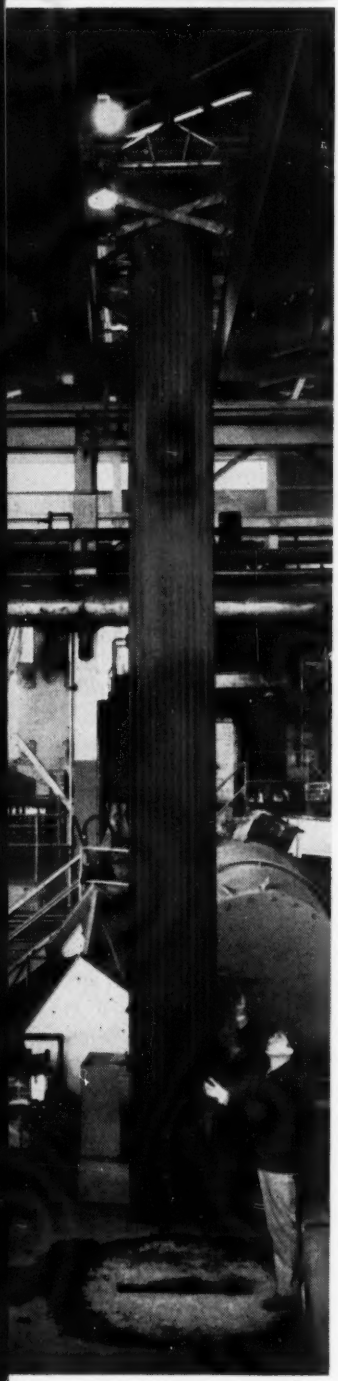

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SPOTLIGHTING Finishing Progress

Dr. Nelson F. Murphy, Research Professor of Chemical Engineering, Virginia Polytechnic Institute

An Electrochemical Index for Porosity

Research being conducted at the National Bureau of Standards on cause and detection of pores in electroplates was described in the October, 1960 issue of PRODUCTS FINISHING. The subject is also under investigation in England, as evidenced in a recent article by Clarke and Britton[1] of the Tin Research Institute.

Shone and Evans[2] in 1951 proposed a method to measure the corrosion of basis metal taking place in pores of electroplates under anodic polarization. But the resistance of the electrolyte in the pores had a greater effect than was expected, so that it was difficult to avoid cathodic control of the polarization.

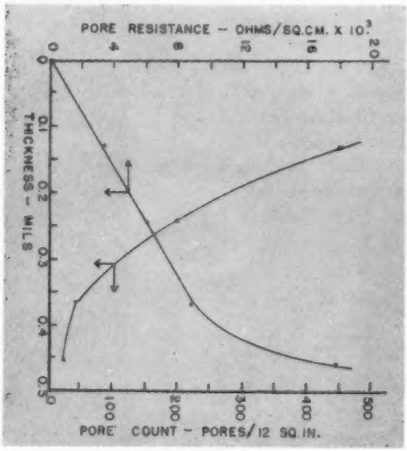

Fig. 1—Comparison of pore count, pore resistance and thickness of tin plate specimen.

Assume that corrosion in a pore is caused by the current flowing between the basis metal exposed inside the pore and the coating. This condition can be simulated if a small current is passed from the plated panel under test to a separate cathode.

The potential between the panel and the auxiliary cathode, "E", will be that impressed on the cell to pass a small current, "i." This current passes through a capillary, where the resistance is "r." If a standard electrode fitted with a capillary tip is located with the tip near the panel, the potential drop between the standard electrode and the panel will be the anode potential. This anode potential will vary as a straight line function of the current, "i."

As long as the current is not too large and the current-voltage curve is a straight line, the anode voltage to pass a given current will be a direct

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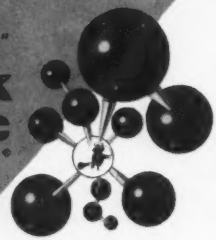

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"Activated" BLACK MAGIC is a new approach to a black oxide process because of its constant, automatic, self-regenerating, decontaminating, catalytic action along with other vitally important and unusual characteristics. "Activated" BLACK MAGIC contains entirely new concepts of activators, catalysts, penetrants and rectifiers. This produces the following outstanding advantageous results in operation, processing and final resultant black finish.

When you use "Activated" Black Magic you get the following advantages:

- Incorporation of the newest available products of chemical research in activators, catalysts, penetrants, inhibitors, and rectifiers.
- More Corrosion and Abrasion Resistance.
- Shorter Blackening Cycles — More Uniform Finish.
- Latest and Unique Method of Self-Rectification.
- Hardened (heat-treated) parts blackened more easily and uniformly.
- Single Bath — One Chemically Balanced Salt.
- Low Operating Temperature — Lower Cost of Operation.
- Meets or Surpasses all Military, Aeronautical or Civilian specifications.

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function of the pore area of the test panel. The requirements for consistent operation of this test are (1) the current passing through the coating will be negligible compared with that passing through the pores; (2) there will be no local attack on the coating; (3) polarization of the basis metal will be insensitive to changes in current density; and (4) the resistance of the electrolyte in the pores will not change as the current flows.

Test results, using the electrolyte prescribed below for tin plate coatings, are shown graphically in Figure 1. The pore resistance was evaluated using the equation:

$$r_p = \frac{e_o - e_v}{(i_o - i_v)\ A}$$

where:

r_p = pore resistance, ohms/sq.cm.

e_o = anode potential with no impressed voltage, volts

i_o = current flowing with no impressed voltage, amperes

e_v = anode potential with impressed voltage, volts

i_v = current flowing with impressed voltage, amperes

A = immersed, exposed area of panel, sq.cm.

The test for porosity is carried out as follows: A coated specimen is masked so that the exposed area is some chosen value: 20, 50 or 200 sq.cm. The larger areas are more suitable for relatively pore-free or

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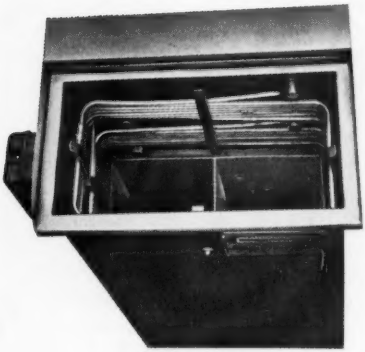
TRISEC® Spotless DRYER



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This new patented "TRISEC" process provides rapid, thorough, stain-free drying of water-wet metal parts at low cost. The process is suitable for practically all articles, including glass, ceramics and metals. It can be used for intricately shaped parts with cracks and crevices as well as stampings, extrusions, castings, tubes, wire and strip.

The "TRISEC" process has been designed to replace conventional systems such as ovens, sawdust and maize, centrifuges, hot and cold blast dryers and perchlorethylene dryers.

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Bulletin 24

"TRISEC" is the registered trademark of Imperial Chemical Industries, Ltd. and this process is the subject of a U.S.A. and British patent pending. Phillips has been granted a license for the manufacture of the equipment and distribution rights of "TRISEC" in the United States.

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thicker coatings. The exposed face is cleaned cathodically in 1 per cent sodium carbonate solution, at room temperature, for 30 seconds. The test piece is rinsed and placed at once (wet) in the test cell.

The test cell is a container fitted with a copper or other inert cathode, and a calomel reference electrode with a capillary tip that can be placed near the surface of the test area. The external circuit consists of a controlling mechanism for the current passing through the test piece, the cathode and a milliammeter. A voltmeter measures the impressed voltage. A means is also provided for measuring the potential of the test piece against the calomel electrode, with a potentiometer.

The electrolyte used in the test cell depends on the nature of the coating being tested. It should be of such composition that the coating will develop anodic passivity at low current densities. Or it may be of such composition that the impressed voltage-current curve is a straight line up to about 150 to 200 millivolts.

For copper coatings, 3 per cent NaCl solution is used. For nickel coatings, 3 per cent NaCl plus 1 per cent Rochelle salts. For tin coatings, a solution of 20 gm./l. ammonium thiocyanate, 50 ml./l. of 20 vol. hy-

(continued)

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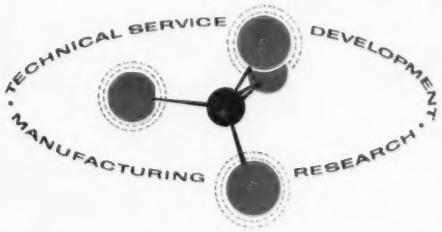

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drogen peroxide, adjusted to pH of 8 with sodium hydroxide.

The potential of the specimen vs. calomel is measured with no current passing until it is steady (ten minutes). Then the current is adjusted and allowed to pass at a low impressed potential until the cathode vs. calomel potential again becomes steady at about 100 mv. The current is recorded.

For each coating, each basis metal, and each shape, a calibration curve must be prepared. Unless the calibration is made with a pore count, the choice of a satisfactory test value for a low-pore coating will be arbitrary or may be based on comparison of the pore resistance and corrosion test results.

Obviously such tests have not as yet been standardized. For each coating, the user must make comparative tests before using this method. However, the method does promise to be a quick, easy method for comparing the porosity of production samples, and may also be used to study the comparative porosity of plates, and of the change of porosity with thickness of plate. It may eventually be used to gather information on pore coverage, and change in shape.

REFERENCES

1. Clarke, M. and S. C. Britton; Trans. Inst. Metal Finishing. *36*, part 2, 58 (1958-59).
2. Shone, S. C. and U. R. Evans; J. Electrodepositors' Tech. Soc. 27, 45 (1951).

Until recently, caskets were moved on pallets and air drying was the practice. In the modernized plant at Aurora, Ind., now, with automatic conveyors and driQuik ceramic type electric infra-red ovens: 1. the complete finishing operation, from base coat to final lacquer, takes much less space; 2. production was increased 20% with less labor cost; 3. quality was improved. Only driQuik, with its accurate temperature control (to within 1 degree of desired heat by turning a knob) can give the correct temperatures for each of the different coatings. No bulbs, quartz tubes, rods or sockets to burn out and need replacement. Write for FREE field demonstration in your plant.

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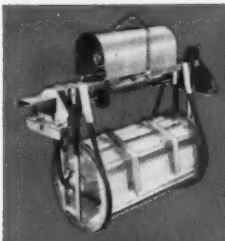
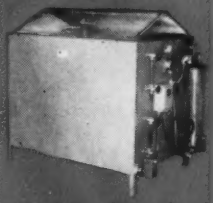


Singleton Barrel



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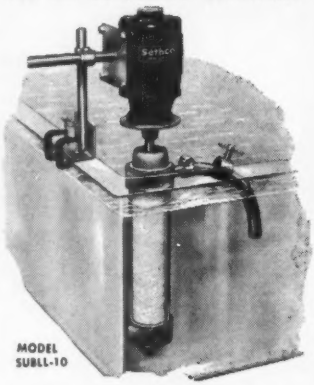

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Conveyorized Spraying and Drying System Lacquers Pencil Ferrules

A new system for spraying and drying nitrocellulose lacquer on metal pencil ferrules has increased speed of the finishing operation by 50 per cent in the Wilkes-Barre, Pa., plant of Eberhard Faber, Inc.

Formerly sprayed by hand and air dried, the pencils now travel past an automatic spray gun on a conveyor and then through a Fostoria infrared oven, which dries the lacquer in four minutes. Air drying required 15 min.

Finishing of the ferrules begins with a burnishing operation, which is followed by lacquering with clear lacquer in a Ronci centrifugal painting machine. Then the ferrules are attached to a conveyor which takes them through the remainder of the process at a speed of 94 inches per minute, finishing the ferrules at the rate of 51 gross per hour. Place Engineering Co. designed and built

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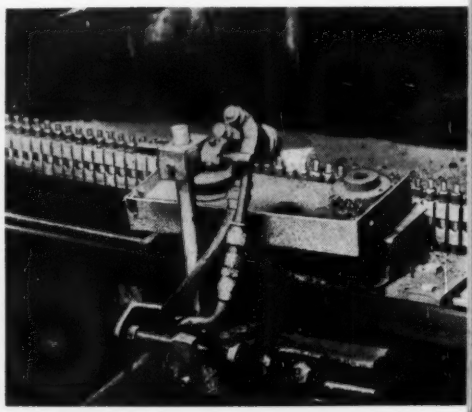

Fig. 1—Ferrules move past DeVilbiss spray gun on a conveyor, rotating to coat all sides.

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the conveyor and spraying setup. Fostoria Corporation installed the infrared oven.

As the ferrules travel past the DeVilbiss spray gun, they rotate so that all sides are covered by the Tenax lacquer. The gun sprays continuously as long as ferrules are traveling past.

The infrared oven has an overall length of 22 feet and consists of twelve two-lamp sections, six on each side of the conveyor. Quartz lamps are used.

Lamps are controlled by means of a manually preset thirty-second input cycle timer which switches the lamps on and off for a desired number of seconds, making temperature control simple for various production speeds. Cycle is usually fifteen seconds on, fifteen off, with a temperature range of 185-195 deg. Fahrenheit.

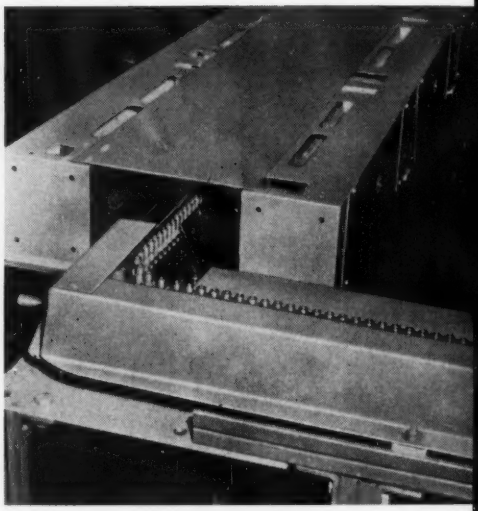

Fig. 2—Infrared oven dries the lacquer in the four minutes that it takes for conveyor to carry them through. (Photos courtesy Fostoria Corporation, Huntingdon Valley, Pa.)

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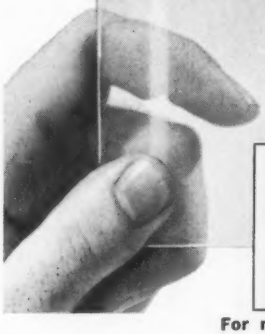

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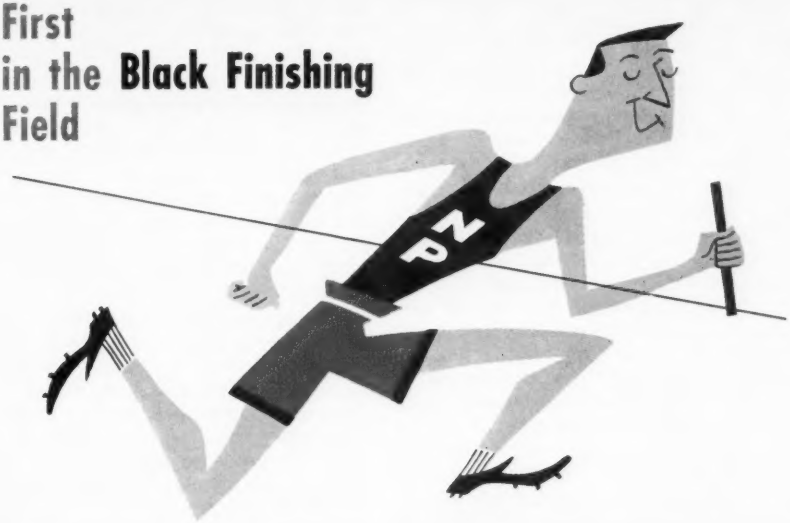

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finishing clinic

(Suggested solutions to problems submitted by readers. Send your problems to our Editorial Staff. There is no charge.)

Color-Coating Process

Question: *We do contract painting. Your article, "Stran-Steel's Color-Coating Process," is of great interest to me, especially since I am about to begin painting similar sheets.*

There are several questions I wish you would answer.

1. Our paint source recommends zinc chromate to prime galvanize. Is this a satisfactory primer?

2. They also feel that an alkyd resin paint will do a good job on these sheets. What is your opinion?

3. I can understand preheating the sheets, but why the temperature variation in the oven? Zone one, 275 deg., down to zone two, 175 deg., then up in zone three to 250 deg., and up to 300 deg. in zone four.

4. The sheets are in the oven slightly over 3 minutes. Is this sufficient time to cure a vinyl-based material? A cure of 5 to 6 minutes at 300 deg. to 340 deg. was the recommendation given to me.

5. It is my understanding that a vinyl has about 25 per cent solids and would require in excess of 4 mils wet to secure a one mil dry film. If this is the case how can they prime and topcoat for 2 cents per square foot including labor and overhead?

C. J. L.

Answer: Your first question concerns the comparative values of zinc chromate primer and the type being used at Stran-Steel. Zinc chromate properly applied would produce a sheet with reasonably good adhesion. I have no comparative test figures to support my assumption, but I would guess that Stran-Steel is getting better adhesion by using the reactive primer that they are now using. The zinc chromate would not give the long-term adhesion and protection required. You must also remember that this type of primer is formulated to bond the vinyl topcoat to the metal; thus, use of another type of topcoat could also influence this decision.

My opinion regarding your second question—the use of vinyls and alkyds as topcoats—is also just from observation of what's going on rather than from comparison of test results. I would say that the vinyl coating will do a job that's hard to beat in regard to weathering and abrasion resistance. Naturally the comparison depends on the vinyl and the alkyd you are talking about, since poor formulation could make a tremendous difference. But I notice vinyls being used in many instances where long-term outdoor exposure is expected—on aircraft, on the new buildings at Los Angeles International Airport, on roof tops, and in many other places where tough service is to be expected.

Vinyls would do a better job in general with regard to chalking resistance, fade resistance, and chipping prevention.

The temperature variation in the oven which you question is explained as follows: in the first zone, the paint is still wet and thus it can take the high temperature for a short time so that most of the solvents are "flashed off." Temperature is reduced in the second zone because the thick film of paint has set but still contains some solvent, thus could blister. In zones three and four the temperature again is pushed up to 300 deg. F. in two steps to assure thorough removal of solvent from the film. Obviously the metal does not cool to these temperatures or rise to these temperatures at the speed it is traveling, but since at least part of the heat is supplied by infrared, the response is quick. This is probably one of those things that was arrived at through trial and error and Stran-Steel has found that this is the combination that works best.

These vinyls do not cure as plastisols and organosols do. They dry by solvent evaporation.

Regarding curing time, the panels are traveling at approximately 80 f.p.m., thus they would spend a little over three minutes in the oven. The time required for baking a specific coating depends upon too many variables to say that a specific time is required. Differences in film thickness, formulation, air movement in the oven and even stock thickness can make a difference in the time required for curing. It is obvious that the combination of infrared and convection heating and the temperature-zoned oven is doing a satisfactory job at Stran-Steel.

I cannot answer your question about cost of the coating except to explain that the two cents per square foot figure is what Stran-Steel says it cost over unpainted sheet. I do not know how much they are paying for coating material, labor, and so on.

★ ★ ★

Buffing Beryllium Copper

Question: *What materials and processes are required to finish articles cast of beryllium copper? We particularly need information as to the type of cutting and polishing compounds needed to obtain a high gloss finish.*

W. B.

Answer: With this letter we are forwarding a copy of the PRODUCTS FINISHING DIRECTORY. You will find manufacturers of polishing and buffing compounds listed on pages 82 to 86 under the heading, "Compounds, buffing and polishing." These companies can suggest specific compounds for your rather specialized problem.

★ ★ ★

Chromate Conversion Coatings

Question: *We are trying to find a substitute for painting nail heads on the face of our finished signs.*

At present we are using a hot dipped galvanized nail to mount our painted steel signs to their wooden frames. Since the shiny nail head is objectionable in many cases, we are touching up the nail head with the same color of paint which surrounds the exposed nail head. The nails must be able to withstand outdoor exposure.

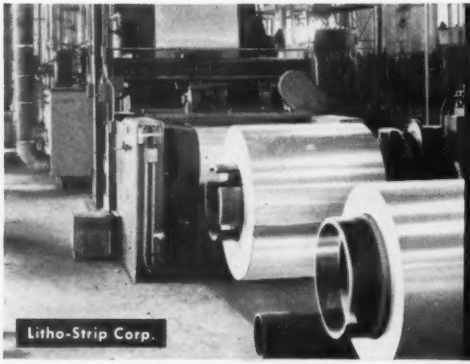
We would appreciate any help you could give us as to the possibility of obtaining nails which have been plated, coated, or conversion coated and which will withstand outdoor exposure.

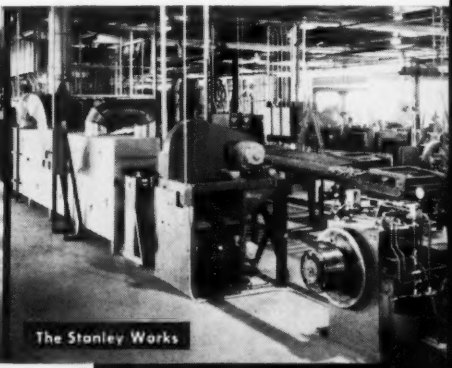
D. B. W.

Answer: You might be interested in exploring the possibility of cadmium or zinc plating the nails and having them treated with a chromate conversion coating.

Manufacturers of chromate conversion coatings are listed beginning on page 62 of the PRODUCTS FINISHING DIRECTORY.

If there is one paint color which could be used on all the nails you might find it advantageous to process the galvanized nails through a chromate conversion coating and then coat them by tumble-painting.





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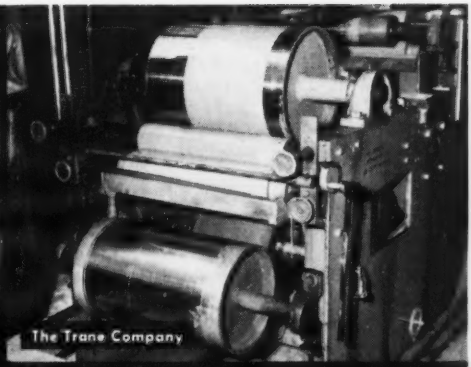
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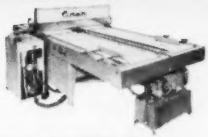

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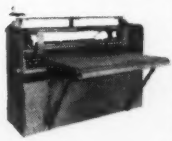

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Rotary Polishing Machine Combines Index and Continuous Drives

An automatic rotary polishing and buffing machine that combines both indexing and continuous operation in one machine. It can be converted in less than one minute from rotary indexing to continuous rotary motion to permit finishing a variety of parts.

With this combination drive, one machine can be used for both long- and short-run jobs.

Parts such as door handles, metal drinking tumblers, flashlight cases, engine valves, coffee pots, plumbing fixtures and die cast parts of all types can be finished by this machine.

It consists of a series of replaceable cartridge-type spindles mounted on a rotary table.

The index drive consists of a Geneva index mechanism. A timer control permits variable index speeds when required.

Polishing and buffing operations are performed by separate adjustable lathes placed around the periphery of the rotary table. Each lathe can be equipped with buffing wheels, polishing wheels, wire or tampico brushes or abrasive belts to perform the desired polishing or buffing operations.

Manufacturer: Acme Manufacturing Co., 1400 E. Nine Mile Rd., Detroit 20, Michigan.

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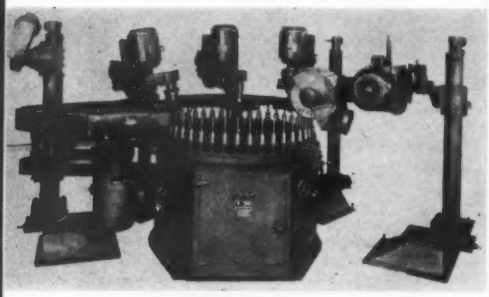

Acme automatic rotary polishing and buffing machine combines both rotary index and continuous rotary travel in one machine.

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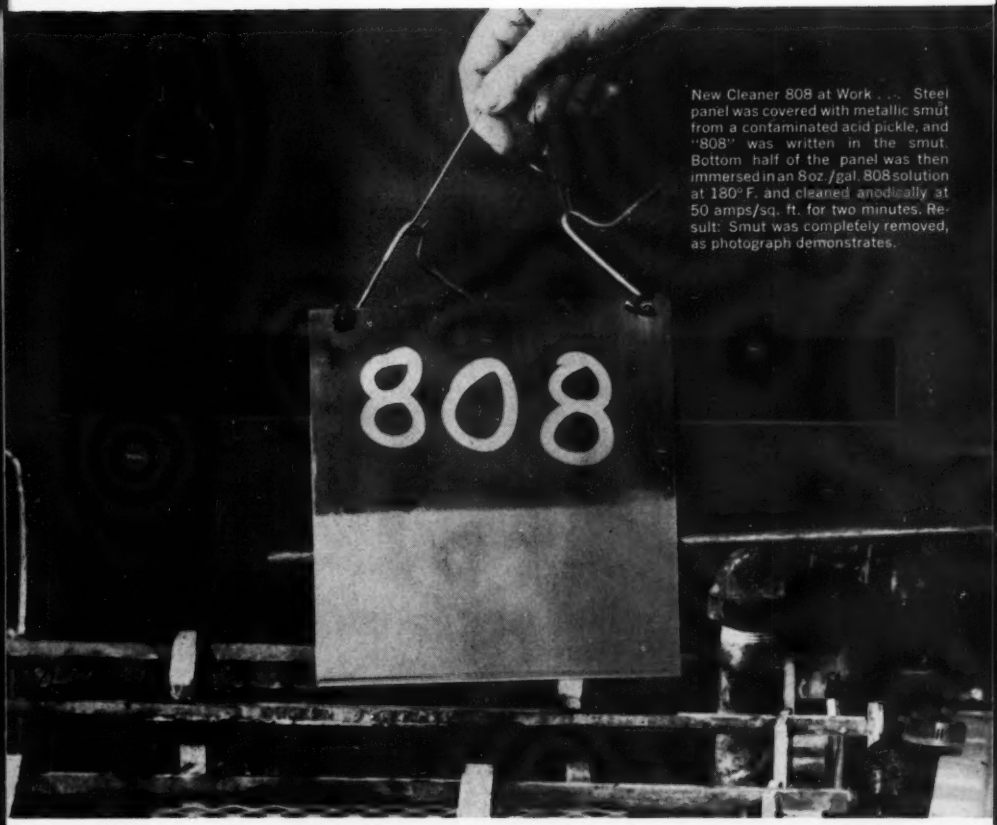
Nylon Mesh Bag

The Niagara Nylon Mesh Container, a sturdy draw-string bag, is useful for processing small parts through degreasing, cleaning, ultrasonic cleaning, and allied operations. The small parts are placed in the nylon bag, which is then closed with the draw string. There is no chance of rust contamination from metal baskets. Also, parts are not lost during handling. After cleaning or degreasing, parts may be dumped out of the bag easily. Solvents are said to drain completely. Solid contaminants do not accumulate.

(continued)



New Cleaner 808 at Work . . . Steel panel was covered with metallic smut from a contaminated acid pickle, and "808" was written in the smut. Bottom half of the panel was then immersed in an 8 oz./gal. 808 solution at 180° F. and cleaned anodically at 50 amps/sq. ft. for two minutes. Result: Smut was completely removed, as photograph demonstrates.

For Steel . . . **NEW CHELATING ELECTRO-CLEANER**
Removes Light Rust, Scale, Smut, Oxides

Cleaner 808, a new development of Enthonics research, is an alkaline electro-cleaner with chelating action. Its selective chelating agents chemically encircle and remove smut, oxides, light scale and rust. Its high-detergency, high-conductivity ingredients complete the cleaning job. Result: Bright surfaces completely free of contamination.

Cleaner 808 is excellent for anodic cleaning of steel which has just enough rust or scale to defy conventional electro-cleaners. In most applications, by using the work as an anode at current densities of 50-75 amps/sq. ft., cleaning time is 1 to 5 minutes. Cleaner 808 also is being used cathodically. One such application: Cleaning used automobile bumpers for replating.

Cleaner 808 is a dustless, free-flowing alkaline powder with superior wetting, penetrating and dispersing characteristics, and water softening action. A low foam blanket minimizes spray and hydrogen gas explosion. Because oils are displaced and float to the surface, the cleaning solution is free of contamination, has long life.

For complete information about Cleaner 808 with chelating action, write to Enthone, Inc., 442 Elm Street, New Haven 8, Conn.

ASARCO

ANOTHER PRODUCT OF *Enthonics* RESEARCH

ENTHONE

A Subsidiary of American Smelting and Refining Company

For more data circle 360 on Postpaid Card

The nylon containers are stocked in a number of meshes and sizes. They can be manufactured in any shape, size, and mesh desired.

Manufacturer: Henry S. Haupt, P. O. Box 76, Rugby Station, Brooklyn 3, New York.

For more data circle **2** on Postpaid Card

Spray Equipment for Applying Gel-Coats

Binks Manufacturing Co. has developed a system that's designed to spray polyester gel-coats.

The system consists of catalyst tank, resin tank, spray gun, respirator, and the necessary hoses, regulators, and fittings.

A conventional spray gun sprays the resin. It is fitted with a side-injector nozzle to mix catalyst with the resin. Catalysis is effected by injecting under pressure a stream of dilute catalyst directly into the resin stream.

Only one material control is needed with the Binks system. This single control maintains constant equal pressure on both the catalyst and resin tanks. Fixed spray - nozzle orifices dispense the proper proportion of each material at any given pressure.

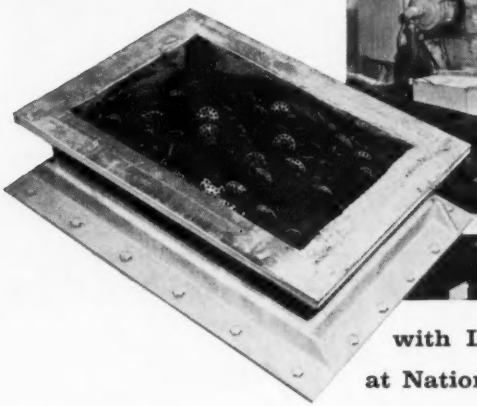
The control permits the user to lengthen or shorten curing time by altering the amount of catalyst dilution, without changing the pressure on either tank.

The gel-coat system is especially useful for coating boats, caskets, trucks,

(continued)

NEW
VIBRA Bantam
IN-LINE DEGREASER
Manpro Vibras utilize a unique vibrating spiral elevator to move work rapidly up through non-flammable cleaning solvents and vapors.
This compact yet mighty degreaser (only 20 in. sq.) is priced and engineered to revolutionize production degreasing. Now, equip every small part manufacturing machine in your plant with a new Vibra Bantam at surprisingly low cost. Eliminate dripping tote pans. Cut manpower. Parts feed automatically, emerge chipfree, dry—ready for immediate inspection.
Write today for complete data on the New Vibra Bantam
MANPRO
CORPORATION
1360 HILTON ROAD, DETROIT 20, MICH.
For more data circle 361 on Postpaid Card

$108,000 SAVED IN ONE YEAR



with LORD® vibratory processing at National Cash Register Company

It takes a heap of gears, pinions, levers, bearings, ratchets, contacts and other small parts to make a cash register, accounting machine or any of the other items of equipment manufactured at the National Cash Register Co. plant in Dayton, Ohio.

And it takes a heap of processing to deburr, radius, finish and otherwise prepare these parts for assembly into the finished product.

Even with Lord vibratory finishing equipment 5 vibrators operate 24 hours a day to handle the 414 different parts now processed in Lord equipment and to run tests on hundreds of other parts that are candidates for vibratory finishing.

But, compared to conventional barrel finishing and manual methods such as filing, grinding and brushing, Lord vibratory finishing has effected a heap of savings—$108,000 in one year on 375 parts.

The other 39 parts which are processed in the vibrators receive the processing as an additional step to improve performance of the end product.

And this is an important part of the Lord story—vibratory finishing gives you the finish you need. Thorough deburring, precise micro-inch finishing, accurate radiusing, close tolerances—all these you get with Lord vibratory finishing, plus savings in time and in money.

Call on your Lord engineer for the practical solution to finishing your "problem" parts. Or write today for details of Lord experimental finishing service and media and compounds for precision barrel and vibratory finishing.

LORD CHEMICAL and EQUIPMENT DIVISION
OF WHEELABRATOR CORPORATION
2068-E South Queen Street York, Pennsylvania

For more data circle 362 on Postpaid Card

Gel-coat spray system makes possible accurate metering of materials with minimum control adjustment. A single control maintains desired pressure on catalyst and resin tanks, while fixed orifices in the spray gun dispense proper proportion of materials at any pressure.

swimming pools and concrete blocks.

Manufacturer: Binks Manufacturing Co., 3118-40 Carroll Ave., Chicago 12, Illinois.

For more data circle **3** on Postpaid Card

★ ★ ★

Colored Pearlescent Finishes: Higher Luster, Greater Intensity

Mearl Corporation's Murano Colors now have greater intensity and the resultant finish has more luster.

While they react like conventional pearl pigments in all respects, these synthetic pearl pigments have two inherent colors: one observed by reflected light, and the second seen by transmitted light. The more intense pigments permit increased color play.

Murano Colors are produced by

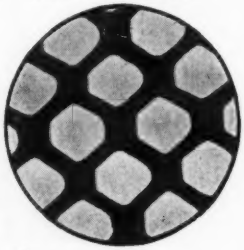
(continued)

PROTECT FINE PLATED SURFACES

with **RP** *Neotex*®

PROTECTIVE MESH

Neotex . . . the open pattern Neoprene rubber matting, protects highly polished finishes when used to line any surface where goods are worked on or in transit. In roll form, Neotex can be easily cut to any size or shape . . . it's rugged and long lasting, resistant to abrasives, caustics, heat, acids, oils, oxidation. Open pattern permits buffing compounds to settle. Available in a fine or coarse pattern. Write for complete information.



RP *Neotex*®

RESEARCH PRODUCTS CORPORATION

Dept. 76-C, Madison 1, Wis.

For more data circle 363 on Postpaid Card

Big Year-'Round Profit Potential in FUNCTIONAL COATINGS

You may be missing *big* money if you haven't explored the possibilities of *functional* vacuum coating to bring in new business to supplement seasonal peaks in decorative coating. The demand is tremendous—in electronics, such as transistors, resistors, miniaturized circuits . . . in ceramics, such as fuses, heat barriers—in other applications, such as reflectors, rear view mirrors, windshields—and it's growing all the time.

CVC makes it so easy to get started. We'll gladly run your samples in our application lab, testing feasibility of your process set-up. And we'll help you adapt, or set up from scratch, with the *complete,* profit-proved line: from 12″, for laboratory or limited production, to 72″, for mass production. Just call your nearest CVC Sales Office.

WRITE for Bulletin 2-2.

Consolidated Vacuum Corporation

ROCHESTER 3, NEW YORK

A SUBSIDIARY OF CONSOLIDATED ELECTRODYNAMICS/BELL & HOWELL

For more data circle 364 on Postpaid Card

optical effect rather than by the absorption of a particular band of wave lengths. Blue, green, red, orange, and gold are a few of the colors available.

Manufacturer: The Mearl Corporation, 41 East 42nd St., New York 17, N. Y.

For more data circle **4** on Postpaid Card

Ultrasonic Cleaner with Solid-State Generator

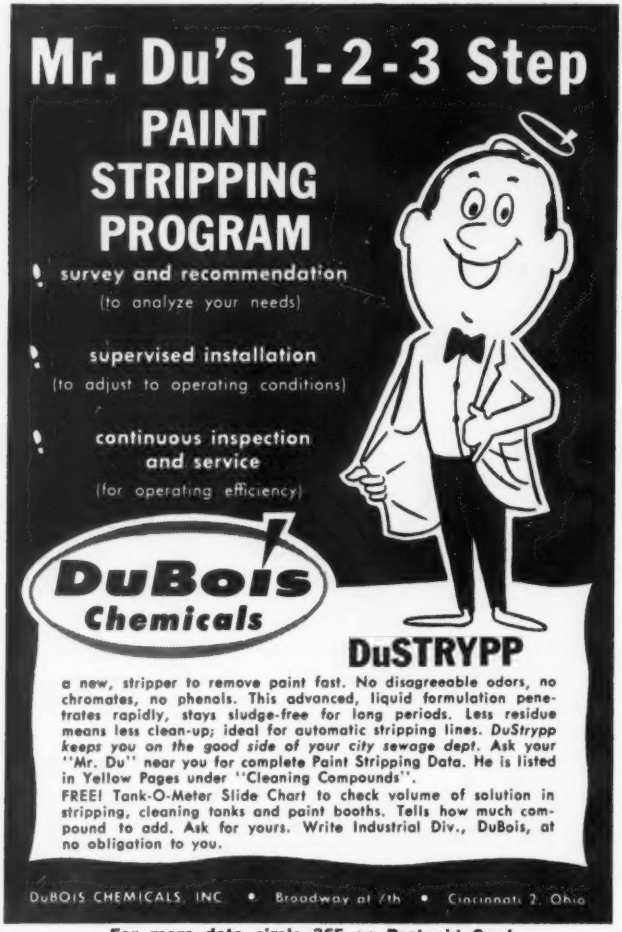
A compact ultrasonic cleaning system introduced by Branson Ultrasonic Division of Branson Instruments, Inc., is designed for cleaning small parts and sub-assemblies. Designated Model LG-75, the unit is powered by a 75-watt generator driving a transducerized tank at a nominal frequency of 25 kc.

Transistors reduce the size of this generator. The cabinet measures 12 by 10 by 5½ inches high.

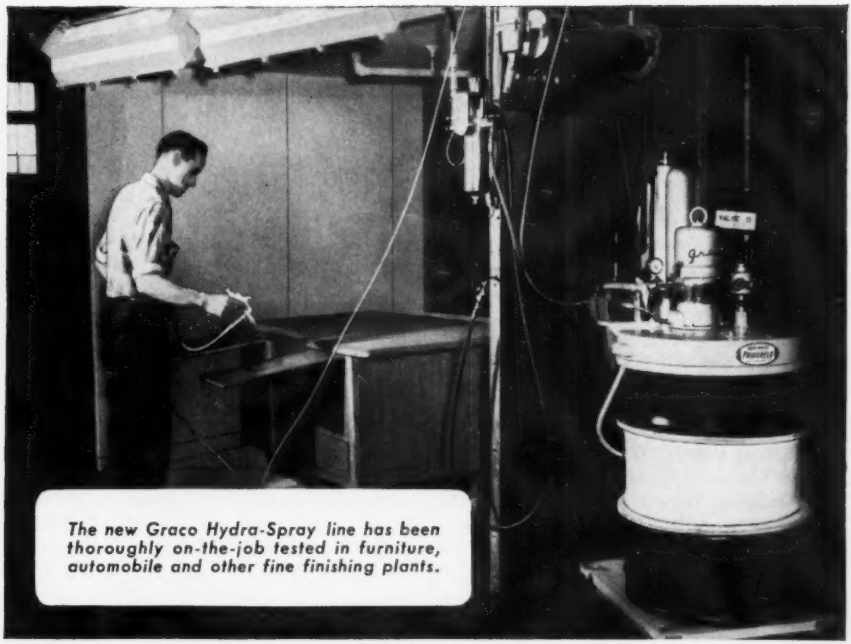
The LG-75 has two simple controls. A panel-mounted switch turns the generator on, applying 75 watts of high-frequency energy to either of two transducerized tanks, for conversion into mechanical vibrations of the same frequency. Resulting cavitation produces effective, high-speed cleaning.

A full-wave generator signal, which cleans even stubborn stains and soils quickly and thoroughly, is possible with the LG-75 system because its Sonogen-Z transducers are capable of handling large amounts of power. Output of the generator is

(continued)


Mr. Du's 1-2-3 Step
PAINT STRIPPING PROGRAM
survey and recommendation
(to analyze your needs)
supervised installation
(to adjust to operating conditions)
continuous inspection and service
(for operating efficiency)
DuBois Chemicals
DuSTRYPP
a new, stripper to remove paint fast. No disagreeable odors, no chromates, no phenols. This advanced, liquid formulation penetrates rapidly, stays sludge-free for long periods. Less residue means less clean-up; ideal for automatic stripping lines. DuStrypp keeps you on the good side of your city sewage dept. Ask your "Mr. Du" near you for complete Paint Stripping Data. He is listed in Yellow Pages under "Cleaning Compounds".
FREE! Tank-O-Meter Slide Chart to check volume of solution in stripping, cleaning tanks and paint booths. Tells how much compound to add. Ask for yours. Write Industrial Div., DuBois, at no obligation to you.
DuBOIS CHEMICALS, INC • Broadway at 7th • Cincinnati 2, Ohio

For more data circle 365 on Postpaid Card



The new Graco Hydra-Spray line has been thoroughly on-the-job tested in furniture, automobile and other fine finishing plants.

Here's how Graco Hydra-Spray brings new economy to fine finish work

● Now you can apply precise, even-mil thicknesses for final finishes on furniture and similar products . . . and still get such cost cutting airless features as elimination of over-spray and bounce-back, and better coverage with less waste.

The airless principle of Hydra-Spray enables you to save the 3 out of every 10 gallons of material formerly lost through overspray.

The new Graco "Golden Gun" features a principle in trigger design that makes it very efficient for high volume fine finishing. What's more, there's no lag to cause leaks or spitting!

The Graco "FF" Fine Finish tips handle a wide range of viscosities and produce an excellent lapping pattern that makes it possible to apply precise final finishes . . . airlessly!

Choose from eleven models, 5 to 55 gallon capacities, stationary or portable. See your Graco Dealer soon for all the details!

GRACO HYDRA-Spray

GRAY COMPANY, INC. • *ENGINEERS AND MANUFACTURERS*
313 Graco Square, Minneapolis 13, Minn.
(See Phone Book Yellow Pages, Spraying, for Graco Suppliers)
For more data circle 366 on Postpaid Card

easily switched either to a cleaning or a rinse tank. A second control matches the generator to prevailing conditions when first placed into operation.

The Model LG-75 is recommended by Branson for cleaning precision parts, electronic components, investment castings, miniature bearings, intricate sub-assemblies, dies, and similar products.

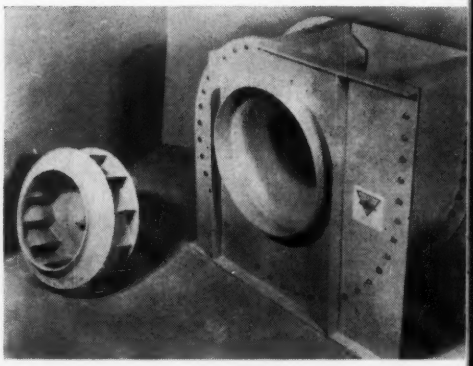
Manufacturer: Branson Ultrasonic Div., Branson Instruments, Inc., 40 Brown House Rd., Stamford, Conn.

For more data circle **6** on Postpaid Card

★ ★ ★

Reinforced Plastic Blower Housings and Fans

The Ceilcote Company has developed a line of reinforced plastic centrifugal blower housings with plastic-covered standard fan wheels. Offering excellent chemical resistance plus high strength/weight ratios, the Duracor units can be installed as separate components in existing systems or integrally designed into entire Duracor exhaust systems.



Reinforced plastic blower housing handles free chlorine fumes at rates up to 12,000 c.f.m.

Both Duracor housings and ducts are corrosion-proof throughout to pro-

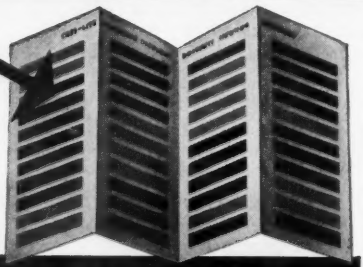
(continued)

NOW 44 COLORS

CRES-LITE
Pure, Brilliant, Metallic
BRONZE POWDERS

Including
New, Gleaming Gold, Copper and Aluminum!

Get New FREE Color Card
Shows 44 in-stock colors for immediate delivery. Fast service guaranteed on special or matched colors



CRESCENT BRONZE POWDER CO.
118 W. ILLINOIS ST., CHICAGO 10
1841 S. FLOWER ST., LOS ANGELES 15

For more data circle 367 on Postpaid Card

SPRAY CLEAN AND PHOSPHATIZE

ferrous metals in one operation with new DIVERFOS F-72

DIVERFOS F-72
conforms to
U.S. MILITARY SPECIFICATIONS MIL-C-490A
for Grade III process

Phosphatizing in many plants is a needlessly complicated procedure. Three, four or more stage processes are often used when a simple two stage process using Diverfos F-72 is all that's needed. The exceptional detergent action completely removes most soils; leaves surfaces with a uniform, tightly bonded iron-phosphate coating. Complete cleaning reduces spotting and uneven coating to a minimum and eliminates the need for additional coating steps. Want expert advice and guidance to insure desired phosphatizing results? Call your local Diversey D-Man. For literature write THE DIVERSEY CORPORATION, Chicago, Illinois.

Soak or spray, you get superior ZINC-PHOSPHATE coatings on iron or steel with DIVERFOS Z-1

You know you get better corrosion resistance and tighter adhesion because Diverfos Z-1 meets and exceeds Federal specifications. Uniformly heavy crystalline coating conforms to Specification MIL-C-490A, Grade I process. Diverfos Z-1 baths are exceptionally long-lived (a real winner with cost conscious production people). For unusual sludge problems, specially formulated Diverfos A-1 additive prevents sludge and assures consistently uniform zinc-phosphate coatings. Your Diversey D-Man can recommend the most economical phosphate coating process for your plant. For literature write THE DIVERSEY CORPORATION, Chicago, Ill.

We're going to be at the
WESTERN METAL SHOW
MARCH 20-24

YOU'RE INVITED to drop in at Booth 429. Our D-Men will be on hand to discuss your plant procedures with you. Perhaps they can give you a hint or two on how to cut production costs in your plant.

DIVERSEY®

DIVERFOS F-72

For more data circle 368 on Postpaid Card

vide maximum resistance to attack from practically any acid or alkali.

Manufacturer: The Ceilcote Co., 4832 Ridge Rd., Cleveland 9, Ohio.

For more data circle **7** on Postpaid Card

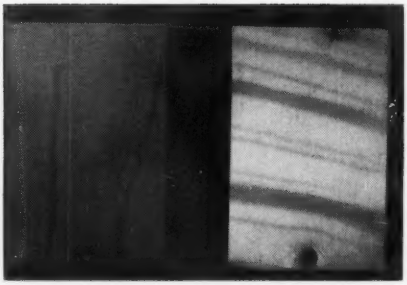
★ ★ ★

One-Dip Cadmium-Conversion Process

Hanson-Van Winkle-Munning Company has introduced Chem-Rite C-55, an inexpensive single-dip chromate-conversion coating process for cadmium. The process enhances the brightness of the cadmium deposit, produces a clear chromate coating, and is easy to operate, according to H-VW-M. No subsequent leaching is necessary.

The chief use for Chem-Rite C-55

(continued)



Dull, corroded panel (left) has been treated with a bright cadmium plating process without a subsequent chromate conversion coating. Bright panel has been cadmium plated and then treated with Chem-Rite C-55 conversion coating. Both panels have been subjected to an identical corrosion test, six hours of hot salt spray. (Marks, top and bottom of chromated panel, are thumb prints.)

Rhodium

ELECTROPLATING SOLUTIONS

Backed by 60 Years of Specialization

Rhodium electroplate is suggested for these applications: on wave guides and microwave equipment which may be used in marine atmosphere; in printed circuits; in electrical contacts where light contact pressure and low voltages are involved... Rhodium is very hard and corrosion-resistant.

This Rhodium plating solution is easy to use. It operates over a wide range of temperatures and current densities. We will be glad to plate samples without charge.

Consult our staff about plating problems.

SINCE 1901

SIGMUND COHN MFG CO., INC

121 SOUTH COLUMBUS AVE. MOUNT VERNON, N.Y.

For more data circle 369 on Postpaid Card

Corrosion can be prevented with SOLVAY SODIUM NITRITE

Even the finely machined, threaded surfaces of tiny screws can be kept free of rust by treating them with SOLVAY® Sodium Nitrite!

These screws are identical with one important *exception*. The contents of the right-hand box were dipped in a low cost 3 to 5% concentration of SOLVAY Sodium Nitrite to form an invisible gamma oxide protective film that guards metal surfaces against corrosion. This easy treatment works equally well on big metal parts—iron or steel sheets, tubes, bars or semi-finished parts during storage or between processing steps. Spray or dip it on, in solution—add it to circulating water systems—combine it with phosphates for greater moisture resistance. In addition, it is reported to suppress degradation in aluminum, tin, monel, copper and brass.

Get the details about the many anti-corrosion uses of SOLVAY Sodium Nitrite and a test sample...

Sodium Nitrite • Calcium Chloride • Chlorine • Caustic Soda • Caustic Potash Chloroform • Potassium Carbonate • Sodium Bicarbonate • Methyl Chloride Soda Ash • Ammonium Chloride • Methylene Chloride • Monochlorobenzene Vinyl Chloride • Para-dichlorobenzene • Ortho-dichlorobenzene • Ammonium Bicarbonate • Carbon Tetrachloride • Snowflake® Crystals • Hydrogen Peroxide Aluminum Chloride • Cleaning Compounds • Mutual® Chromium Chemicals

Allied Chemical

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N. Y.

SOLVAY branch offices and dealers are located in major centers from coast to coast.

SOLVAY PROCESS DIVISION 71-11
ALLIED CHEMICAL CORPORATION
61 Broadway, New York 6, N.Y.

Please send me without cost:
☐ Test sample of SOLVAY Sodium Nitrite
☐ Booklet—"Sodium Nitrite for Rust and Corrosion Prevention"

Name _____
Position _____
Company _____
Phone _____
Address _____
City _____ Zone ____ State _____

For more data circle 370 on Postpaid Card

will be as a protective coating for hardware and other cadmium plated products that require long shelf life without discoloration and loss of brightness.

Full information about Chem-Rite C-55 is contained in the three-page instruction manual, "Instruction Manual for Chem-Rite C-55." The manual is available free.

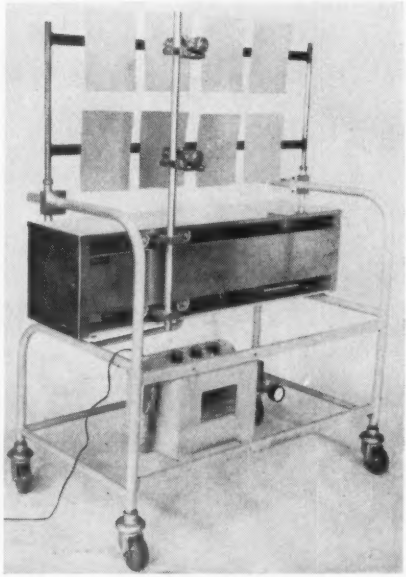
Manufacturer: Hanson-Van Winkle-Munning Co., Matawan, N. J.

For more data circle **8** on Postpaid Card

★ ★ ★

Automatic Test-Panel Sprayer

Unit reciprocates spray guns back and forth in front of test panels. At pre-determined intervals, it stops spraying, allows flash off. Stops automatically at the end of the cycle, requires no attention from operator.



Spraymation Automatic Test-Panel Sprayer

The Spraymation machine is particularly useful in spraying large numbers of test panels with acrylics for color-matching purposes.

Manufacturer: Spraymation, Inc., 25 Amity St., Little Falls, N. J.

For more data circle **9** on Postpaid Card

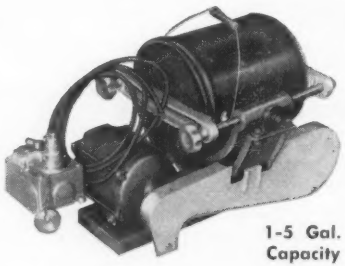
★ ★ ★

Safety Solvent Features Controlled Evaporation

Built-in control allows the solvent to stay wet and working just long enough to clean thoroughly in a minimum of time. It also reduces solvent vapors in the air, minimizing toxicity and flammability.

Turco-Solv is designed for in-place-spray-cleaning of motors, generators, switches, control panels, rheostats and other electrical equipment. It is completely non-corrosive and non-conductive. It requires no hand-wiping, rins-

(continued)



1-5 Gal. Capacity

Model 4 Bull Dog Shaker

Will condition paint to brushing consistency in one to five gallon cans without opening the can. Time required is from two to thirty minutes depending on the paint formulation and the length of time it has been on the shelf. Simply place the can in the saddle, tighten the end plates and flip the switch. Bull Dog will do the rest.

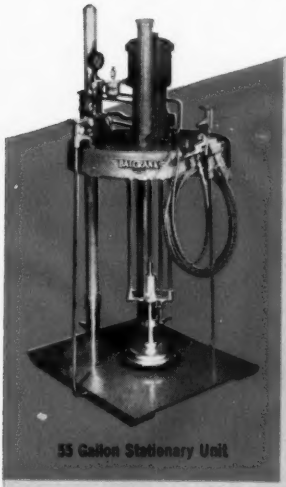
GRENIER & CO., INC.

13142 REXFORD ST., BLUE ISLAND, ILLINOIS

For more data circle 536 on Postpaid Card

NEW BALCRANK HY-SPRAY

airless spray equipment



55 Gallon Stationary Unit

HANDLES WATER-BASE *as well as all other* PAINTS

You get these many plus features when you use the New Balcrank "HY-SPRAY" Airless Spray Equipment:

- Successfully sprays all types of paint, INCLUDING WATER-BASE
- Faster than all other methods for finishing, refinishing and maintenance
- Cuts cost of materials
- Cuts cost of entire painting operation
- Eliminates expensive booths and exhaust equipment
- 10 different models available, both 5/10 gallon and 55 gallon units
- Many exclusive features, offered only by Balcrank

Balcrank manufactures a complete line of regular air operated paint spray equipment, transfer and material pumps in Carbon Steel, Brass and Stainless Steel. Write or wire today for complete information on "HY-SPRAY" or any Balcrank pump equipment.

5/10 Gallon Portable Unit

BALCRANK inc.

10 Disney Street Dept. PF-1 Cincinnati 9, Ohio

For more data circle 371 on Postpaid Card

with the PARAMOUNT
Finishing Touch

"It takes a fine finish to make the world's finest cigarette lighter *look* the part," says Ronson Corporation of Pennsylvania, Delaware Water Gap.

"To insure a finish that is free from surface pits, stains and streaks, we rely on Paramount Felt Wheels in our final polishing operation. We have found that Paramount Felt Wheels can consistently produce surfaces which meet our standards, yet are easy to set up and use."

Follow Ronson's lead — if finish is an important ingredient in your product

Call your Paramount Supplier today.

Paramount
Felt Wheels, Bobs,
Sheet Felt

Bacon Felt Co. 11 Fifth Street
Taunton,
Massachusetts

For more data circle 372 on Postpaid Card

ing or further chemical processing, and is safe to use on all metals, paint and varnish.

Turco-Solv contains a built-in detergent additive which removes deposits of oil, grease, metallic particles, carbon dust and other conductive soils that could cause dangerous and costly flash-overs.

Manufacturer: Turco Products, Inc., 24600 South Main Street, Wilmington, California.

For more data circle **10** on Postpaid Card

★ ★ ★

Mobile Sump Filter Pump

Sethco's "In-Tank" Filter System is now available in a portable, cart-mounted unit.

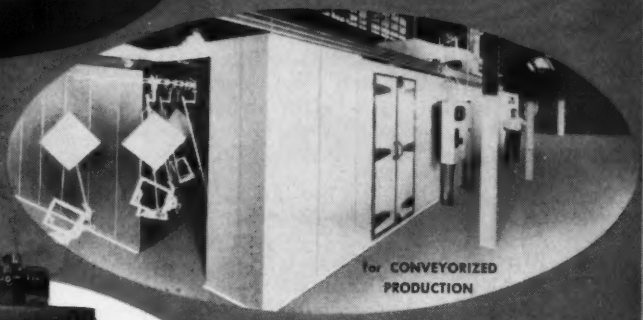
The Mobile Sump Filter System is

(continued)

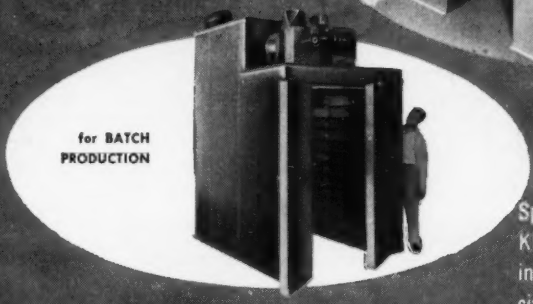
Sethco Mobile Sump Filter Pump

For more data on advertisement on opposite page, circle 373 on Postpaid Card

KIRK AND BLUM
INDUSTRIAL OVENS



for CONVEYORIZED PRODUCTION



for BATCH PRODUCTION

for TESTING or LABORATORY

Specially designed to solve your problem . . . KIRK & BLUM Ovens meet all needs for drying, baking, dehydrating or other more specialized requirements.

Often Kirk & Blum Ovens up to freight car size are shipped completely assembled, tested and ready to operate. Then, they can be connected and in use in a few hours, saving time and expense. Illustrated are typical installations which show the wide range of KIRK & BLUM experience over more than 47 years.

If you have an oven application, discuss it with a KIRK & BLUM Engineer. There's no obligation. Write for free literature.

THE KIRK & BLUM MFG. CO.,
3116 Forrer St., Cincinnati 9, Ohio

KIRK AND BLUM
INDUSTRIAL OVENS

leakproof, self-priming, and designed for filtering of 50 to 600 gallons of solution hourly.

Since the Mobile Sump Filter System can be raised, lowered, and tilted readily, it can be used to filter tanks from approximately one foot below floor level up to a height of four feet.

Manufacturer: Sethco Manufacturing Corp., 2284 Babylon Turnpike, Merrick, L. I., N. Y.

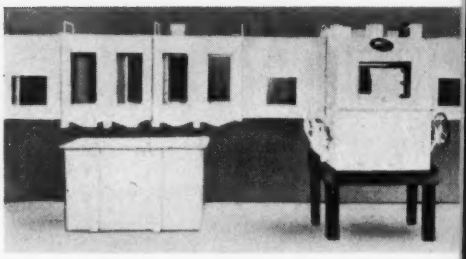
For more data circle 11 on Postpaid Card

★ ★ ★

Plastic Machine Etches Printed Circuits

An automatic machine for etching printed circuit plates has been built almost entirely from fiberglass-reinforced polyester plastic. It is now in operation at RCA, Camden, N. J.

Fabricated by Indust, Inc., the plastic unit resists the corrosive cupric acid etching solution used. Plastic was used extensively. Even stuffing boxes for drive shafts are plastic. Drive shafts are coated with polyester resin, then machined to size.



Plastic Machine: Etches Printed Circuits

The automatic system includes a vestibule, etching tank, and a series of chambers where etched plates are drained, rinsed, re-drained and dried.

(continued)

Chemical Polishing Cuts Aluminum Finishing Cost

America's Foremost Chemical Polishing Process. Alchemize levels surfaces, producing finishes from satin to mirror-bright on otherwise impossible shapes and sizes. Want proof? We'll process your samples and make recommendations without charge.

Alchemize concentrate is available in carboys, drums and tank trucks. Immediate service and delivery in U. S. and Canada.

ALCHEMIZE CORPORATION

Congress Expressway and South Kolmar, Chicago 24, Illinois

CHEMICAL POLISH FOR ALUMINUM

Alchemize

a

For more data circle 374 on Postpaid Card

New burnishing compound

SAFEGUARDS steel media!

. . . yet produces a brilliance, a deeper lustre on brass, copper, nickel silver and silver surfaces. It's ideal for stainless steel and steel parts, too. You'll find that non-saponaceous, dust-free TV-4 leaves no dulling film and it eliminates the need for cleaning. Parts are all ready for lacquer or plating, and in less time, too. Burnishing time is cut and except in cases of severe tarnish, acid pickling prior to burnishing can be eliminated. Special ingredients in TV-4 permit lower concentrations and still remove oxide film while burnishing. Even if you leave the work in solution overnight, TV-4 will not tarnish it nor will it pit or rust your steel media.

You'll agree that TV-4 was planned with *your* problems in mind. Let us send you our Bulletin on this new compound . . . then let us show you what TV-4 can do right in your plant.

PLANNED SERVICE *for better metal finishing*

THE Hubbard Hall CHEMICAL COMPANY • Waterbury, Conn.

For more data circle 375 on Postpaid Card

An overhead chain conveyor moves the plates forward while they are sprayed with cupric chloride which has been tossed into the air by the rotation of 24 fiberglass reinforced polyester paddles.

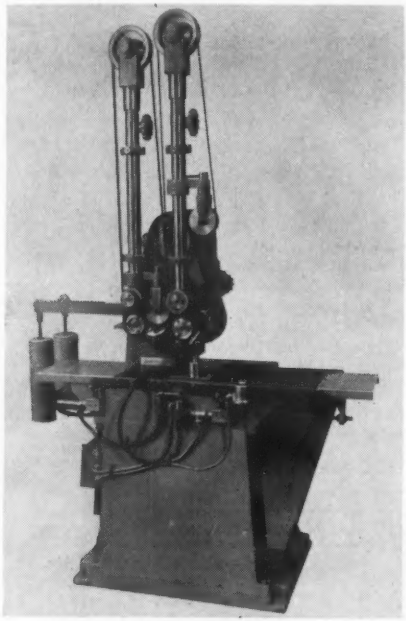
Manufacturer: Indust, Inc., North Bergen, N. J.

For more data circle **14** on Postpaid Card

★ ★ ★

Abrasive-Belt Machine Roughs and Finishes Contoured Parts

A "rise-and-fall" abrasive-belt machine introduced by Eastern Machine Screw Corporation automatically rough grinds and finishes contoured and formed parts in a single cycle.



Loungway Rise & Fall Abrasive Belt Grinder

The Loungway Rise & Fall Abrasive Belt Grinder comes in single and double-spindle models. The double-spindle unit will perform two rough grindings and a finish grind in one cycle. Maximum size of workpiece that can be handled is 4 by 6 inches. Small pieces may be ganged by using a jig.

Manufacturer: Eastern Machine Screw Corp., 60 Barclay St., New Haven 6, Conn.

For more data circle **15** on Postpaid Card

★ ★ ★

Airless Spray Gun

Versa-Gun

A spray gun recently developed by Nordson Corporation requires less pressure for proper atomization. This has been accomplished by an internal design which increases turbulence ahead of the nozzle, the developer reports.

Called the Versa-Gun, this airless sprayer is said to provide more even atomization.

Coating material circulates right up to the nozzle, and this feature, plus fast triggering, prevents "spitting."

The Versa-Gun may be used with any airless system—heated or unheated. It comes in circulating and "dead-end" models.

Manufacturer: Nordson Corporation, Amherst, Ohio.

For more data circle **16** on Postpaid Card

★ ★ ★

Primer for Organosols and Plastisols

P-289 Primer improves adhesion, salt-spray resistance, humidity resistance. Applied by spray or dip, can be

(continued)

Curved anodes fit the curve of the current-carrying saddle, parallel the surface of the cylinder being plated.

CURVED TO FIT THE SADDLE, ANACONDA "PLUS-4" COPPER ANODES PLATE SMOOTHER – CUT COSTS

At Pulitzer Publishing Co., St. Louis, Mo., Anaconda "Plus-4" (phosphorized copper) Curved Anodes have been doing a superior job of plating cylinders. Mr. Jack Snyder of the Rotogravure Section says:

"Curved design lets anodes at top of saddle holder slide together by gravity, eliminating submerged arcing.

"Curved design gives better contact —saves electric power.

"Phosphorized anodes corrode very uniformly. There's less scrap.

"Copper build-up in solution has been greatly reduced by phosphorized anodes. Sludging is minimum.

"'Plus-4' plated cylinders have a smoother finish."

Similar reports are coming in from users all over the country. You can start profiting from these advantages in your own plant by calling your Anaconda representative — or write: Anaconda American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont. 60103A

"PLUS-FOUR"® PHOSPHORIZED COPPER ANODES

ANACONDA®

products of

Anaconda American Brass Company

For more data circle 376 on Postpaid Card

air dried or baked. Drying time (air) 5-15 min. (bake) 5-10 min. Clear or pigmented coatings are available.

Manufacturer: John L. Armitage & Co., 245 Thomas St., Newark, N. J.

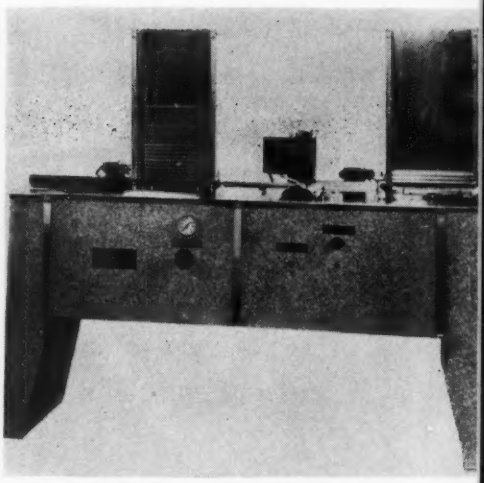
For more data circle **17** on Postpaid Card

★ ★ ★

Hopper Feed For Painting Machine

Equipment for handling large quantities of axial lead components preparatory to coating or marking has been announced by the Conforming Matrix Corporation.

Model TL-1 tray loader automatically takes empty specially designed trays or racks from a magazine, hopper feeds them with previously straightened components, and stacks



Conforming Matrix Model TL-1 Tray Loader

PAINT STRIPPING CLINIC!

Send Us Your Tough Stripping Problems for Fast Action!

14th YEAR OF BECK PAINT STRIPPING CLINICAL SERVICE Saves Thousands of $$$ for Customers—Who Now Use World-Famous...

EPOXYSTRIP

Better find out for yourself . . . about Epoxystrip, Econostrip and other Beck Paint Remover lines and formulations. Use the BECK CLINIC SERVICE—send us several parts, sections, or test panels (properly tagged) of the work to be stripped.

Write or phone giving us essential information—your problem details, requirements, tanks available, hot or cold, etc. This service, and our prompt report, are free, with no obligation.

Beck Strippers outstrip all others—removing organic finishes, epoxies, etc., as easily as baked enamels, lacquers, etc. No stripping scum—clean rinsing!

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BECK EQUIPMENT & CHEMICAL CO.

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the loaded trays into another portable magazine for transfer to coating, baking or other processing operations.

Each tray holds 20 to 50 components and each magazine holds 40 trays, making it possible to handle 800 to 2,000 components at one time, depending upon the size of the component.

The tray loader may be used separately, or in conjunction with the Conforming Matrix remote spray coating machine.

Manufacturer: Conforming Matrix Corp., 783 New York Ave., Toledo, Ohio.

For more data circle 18 on Postpaid Card

★ ★ ★

Electropolishing Solution for Aluminum, Steel

An acid mixture for electropolishing carbon steel, aluminum and stainless steel.

Called Electro-Gleam 55, it produces a bright, smooth finish, removes weld burns, deburrs and removes sharp edges, relieves stress, improves corrosion resistance and reduces friction. Especially effective on welded wire goods and other steel assemblies.

When used on stainless steel, Electro-Gleam 55 completely passivates the surface without the attendant problems of using hot nitric acid.

Manufacturer: MacDermid, Inc., Waterbury 20, Conn.

For more data circle 19 on Postpaid Card

★ ★ ★

Small Vibratory Finisher Tilts While Vibrating

A one-cubic-foot vibratory finisher that can be tilted for rinsing while still vibrating makes possible faster and more thorough rinsing. A rinse cover with a manifold system of spraying the water throughout the work is included with the machine.

In combination with a special punch-plate screen to fit the top of the bowl, the vibrating-while-tilted feature facili-

(continued)

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AUTOMATIC AVERAGE CONSTANT CURRENT DENSITY CONTROL . . . in any range.

AUTOMATIC PROGRAMMING . . . for special programmed outputs.

CONTROL METHODS USED: Saturable Reactors, Motorized Variable Autotransformers, Motorized Tap Switches . . . and other methods as required

DRESSER RECTIFIERS, precisely controlled, are performing efficiently and dependably today for Plating, Anodizing, Laboratory Tests, Production Line Tests, Component Testing and many others.

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tates separation of fine or fractured chips from the rest of the media, and, in certain instances, could be used to separate parts from media.

The bowl of the vibrator is tilted and righted manually for rinsing and unloading. The pivot point of the bowl has been located near the center of the bowl ends to permit manual tilting with little effort. The vibrating member is suspended on four coil springs.

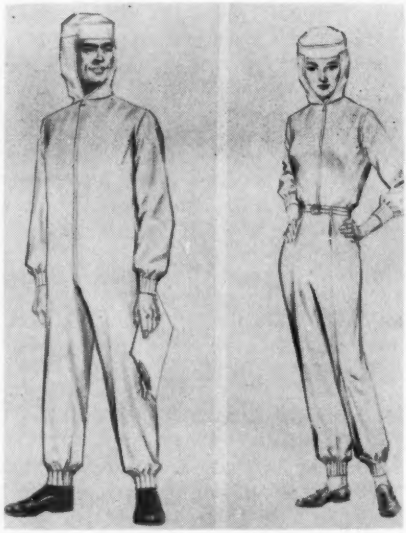
Manufacturer: Lord Chemical & Equipment Div. of Wheelabrator Corp., 2068 Queen St., York, Pa.

For more data circle **20** on Postpaid Card

★ ★ ★

New Styles in Work Clothing

Work clothing recently introduced by Worklon, Inc., includes garments that completely cover the worker, for



Coveralls keep lint away from the product

ELECTROCLEAN ZINC BASE ALLOYS WITHOUT HAZE

CLEPO 50-ZB is an anodic cleaner especially developed for zinc base alloys by the Frederick Gumm laboratories.

CLEPO 50-ZB leaves a lustrous surface: no hazing, no white corrosion patches, no dry-off staining.

CLEPO 50-ZB performs efficiently under a wide range of temperature and time.

CLEPO 50-ZB eliminates tank scaling: can be used in hard water areas.

. . . yet: **CLEPO 50-ZB** is priced no higher than ordinary electrocleaners.

PROGRESS THROUGH RESEARCH-SATISFACTION THROUGH SERVICE
CLEPO

FREDERICK GUMM CHEMICAL COMPANY, INC.
538 Forest Street, Kearny, New Jersey

For more data circle 379 on Postpaid Card

use in dust-free areas where product contamination from lint must be avoided.

Worklon also has announced a Dacron blend for its clothing which is both lint free and static free and offers good resistance to deterioration from acids and caustics.

Manufacturer: Worklon, Inc., 253 W. 28th St., New York 1, N.Y.

For more data circle **21** on Postpaid Card

★ ★ ★

Roller Coaters

L. R. Wallace & Co. has introduced several roller coaters. Models are available with 4, 5, and 6-inch rolls. All models are available with a single top coater; two models have double top coaters and a single bottom coater; lengths available: 8 to 72 inches.

Walco Roller-Coat Painting Machine

Useful for applying lacquers, enamels, adhesives, and so on.

Manufacturer: L. R. Wallace & Co., 172 N. Vernon Ave., Pasadena, Calif.

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PAINT BAKING OVENS

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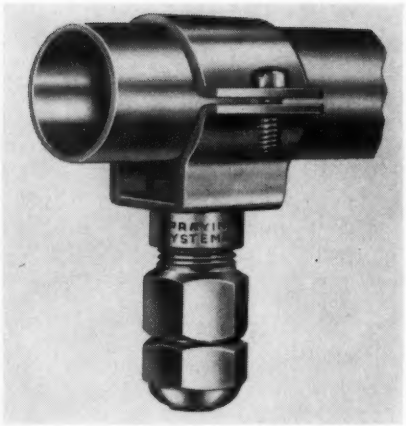
Split-Eyelet Connectors Save Money in Piping and Tubing Installations

In installations requiring fittings for 1¼, 1½- and 2-inch piping or equivalent-size tubing, split-eyelet connectors can frequently cut cost. Because they are easily and quickly installed on continuing or un-cut pipe or tube lengths, installation time and fitting costs are significantly reduced.

These patented connectors are used in place of reducer tees, and to connect such parts as spray nozzles, gages, and hose nozzles.

The bodies provide a ½-inch NPT female outlet. Mounting requires drilling an 11/16-inch-diameter hole in the pipe or tubing and placing the connector in position. Twin-bolt compression of the clamp in combination with a special Buna-N gasket provides a leakproof seal.

Connectors may be used for liquids and gases up to pressures of 150 p.s.i. Use of the connectors eliminates need of cutting, threading and brazing operations at connection points and mate-



Spraying Systems Split-Eyelet Connector

PAINT STRIPPER

THE NEW MIRACLE

STRIPEX #153

NO HEAT NECESSARY!

A mild steel tank is all that is required. Strips All Types of Baked Enamels. Some Baked Coatings are Stripped Clean in a matter of Seconds. Excellent for stripping vacuum metallizing racks.

DYTEX CHEMICAL COMPANY

DYTEX

Chemical Specialties

PROVIDENCE 3, Rhode Island

For more data circle 381 on Postpaid Card

rially reduces the need for such fittings as tees and unions in any installation.

Manufacturer: Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

For more data circle **23** on Postpaid Card

★ ★ ★

Bigger Gasoline Engine for Air Compressors

Higher-output engine permits the pump to deliver up to 125 pounds per square inch pressure instead of the previous maximum of 80 pounds. It is adjustable (by the user) to produce either pressure.

Performance data is as follows:

Operating pressure—Either 80 or 125 pounds.

Rated horsepower—6.44 (formerly 5.1).

Brake horsepower — 3.8 at 80 pounds; 4.2 at 125 pounds.

(continued)

SIMPLICITY ENGINEERING COMPANY
Durand, Michigan

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CHARLES CHAMBERLIN
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SOLVENTOL CHEMICAL PRODUCTS, INC.
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FARLEY AND ALLEN, INC.
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NEW JUNIOR SIZE VIBRA-WASHER

GIVES YOU AUTOMATIC PROCESSING OF METAL PARTS

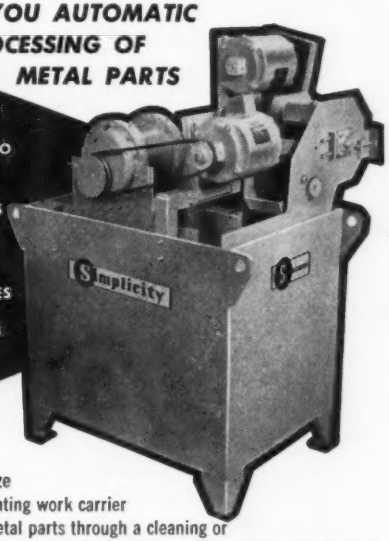
LABOR SAVING

READILY ADAPTABLE TO MANY OPERATIONS

NO NESTING OF PARTS DURING CLEANING OR CONDITIONING CYCLE

ADJUSTABLE CAPACITIES

ELECTRIC—GAS—STEAM HEATING ELEMENTS



The new Simplicity Junior Size Vibra-Washer employs a vibrating work carrier that automatically conveys metal parts through a cleaning or conditioning bath. It cleans so thoroughly that chips, oil and grease are removed from even blind or slotted openings; cleans so gently even the most delicate threads or flanges are not harmed.

If you have a tough cleaning or conditioning job, Simplicity Engineering Company can help. For information, write or call the Industrial Washer Division.

223

Simplicity
TRADE MARK REGISTERED

ENGINEERING COMPANY • DURAND 25, MICH.

FOR CANADA: Simplicity Materials Handling Limited, Guelph, Ontario

For more data circle 382 on Postpaid Card

Displacement, c.f.m.—20.9 (formerly 18.3).

Delivery, c.f.m.—15.0 at 80 pounds; 13.4 at 125 pounds (formerly 13.2 at 80 pounds).

Units are equipped with drain valve, safety valve, gage and air-outlet valve, and have a large-capacity air tank.

The P-UC-524 model comes with pneumatic rubber tires, while the P-USC-521 is skid mounted.

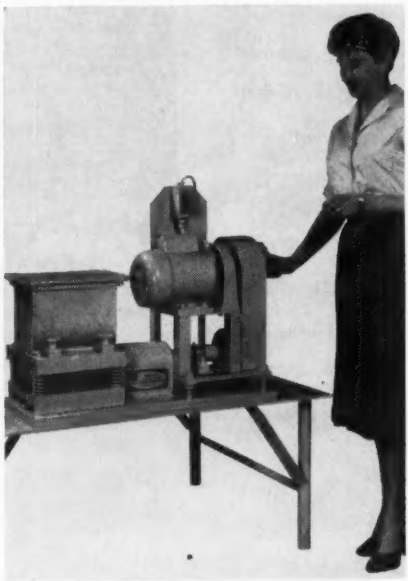
Manufacturer: The DeVilbiss Co., Toledo, Ohio.

For more data circle **24** on Postpaid Card

★ ★ ★

Bench Model Vibratory Finisher

Lord Chemical Corporation recently added a small "bench" model to its line of vibratory finishing equipment.



Lorco's Bench-Model Vibratory Finisher

Use the finish proved best by performance

Randolph

LACQUERS • ENAMELS
DOPES • THINNERS
CLEAR METAL FINISHES
COLORED LACQUERS
CLEAR S.G. FOR METAL
TEXTURE ENAMELS
CHEMICAL COATINGS
AIRCRAFT FINISHES

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A foolproof solution which has been in use for over 6 years in light and heavy production.

- Ready To Use—Just Add Water
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- Low Cost—Additions only once a day

Available in a variety of colors. Will match your sample.

Write for technical bulletin and prices.

TRUE BRITE CHEMICAL PRODUCTS CO.
Box 31, Oakville, Conn.

For more data circle 383 on Postpaid Card

Model 610 holds ¼ cubic foot in a bowl 6 inches wide, 10 inches long and 8 inches deep. Overall dimensions: 12 inches wide, 34 inches long, 28 inches high.

Designed for finishing small and delicate parts, the machine has a capacity of approximately 35 pounds of parts and media.

Imparting the same vibratory action as the larger models in the Lorco line of vibratory finishing equipment, this model is expected to be useful for finishing of needle-like shapes, jewelry, and other relatively small parts.

Manufacturer: Lord Chemical Corp., 2068 S. Queen St., York, Pa.

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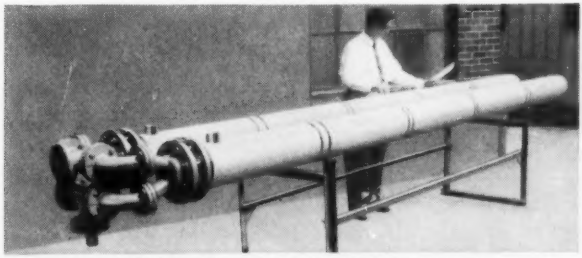
★ ★ ★

Accessories for Ultrasonic Cleaning Equipment

Powertron Ultrasonics Corporation has introduced a group of accessories

(continued)



Heil Nocordal Shell and Tube Heat Exchangers

Heil Standard G-36 Nocordal Immersion Type Heater

HEIL of Cleveland

NOCORDAL *IMPERVIOUS GRAPHITE*

Shell and Tube, and Immersion Type

HEAT EXCHANGERS

• For utmost corrosion resistance, high heat transfer, thermal shock resistance, and low cost operation, specify Heil Nocordal construction. These job-proved impervious graphite units will overcome your toughest corrosion problems. Can be used safely with almost any acid solution. No metallic contamination. Available in a wide variety of proven, completely engineered shell and tube type heat exchangers, and steam and electric immersion type heaters.

Heil Special Nocordal Immersion Type Heater with 10 foot long tubes

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HEIL PROCESS EQUIPMENT

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For more data circle 384 on Postpaid Card

for use in connection with ultrasonic cleaning.

The line includes specially designed baskets, covers which eliminate undesirable odors and fumes during cleaning, and an ultraviolet lamp for use in inspecting parts.

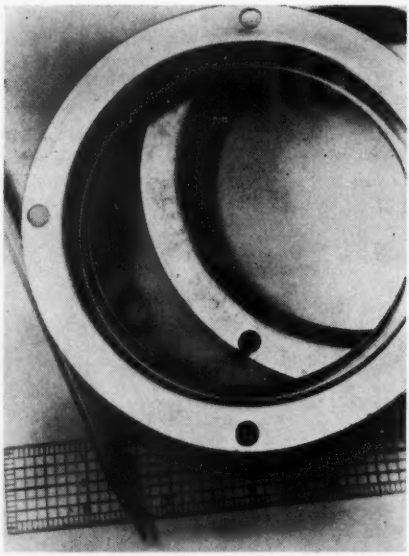
Manufacturer: Powertron Ultrasonics Corporation, Patterson Pl., Roosevelt Field, Garden City, N. Y.

For more data circle **26** on Postpaid Card

★ ★ ★

Brightener for Zinc Plating Improves Finish in Low-Current-Density Areas

A liquid brightener for zinc plating baths, M&T Zinc Brightener 25, improves brightness in low-current-density areas such as recesses and threads.



Part in the foreground has been zinc plated in a bath that contained Zinc Brightener 25. Note the uniform high luster, especially in the low-current-density recessed area.

Manufacturer: Metal & Thermit Corp., Rahway, N. J.

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★ ★ ★

Ultra-Matte Finish For Aluminum

Wrought and extruded aluminum alloys treated in the Clepo Sat-N-Mask Process have an extremely white matte finish. The surface contrasts sharply with polished finishes and it is widely applicable in decorative work.

The matte finish also masks surface scratches and extrusion lines. A dip process, Sat-N-Mask is simple to operate and control.

Manufacturer: Frederick Gumm Chemical Co., Kearny, N. J.

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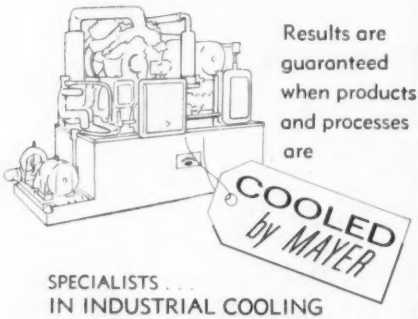
MF/301

For Anodizing (Regular and Hard Coat) and Plating Processes . . . You Need the

New MAYER PACKAGED ACID CHILLER



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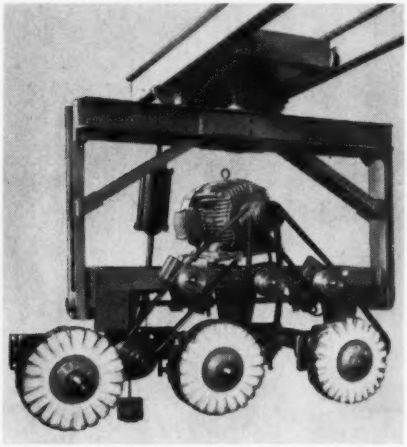
For more data circle 385 on Postpaid Card

Three-Wheel Suspended Work Head Buffs and Polishes Hard-To-Reach Areas

A work head, with three buffing wheels driven by a single motor, and suspended from a mobile, overhead wheel carriage.

Specially designed to buff and polish curvatures not ordinarily reachable by floor-mounted heads, this work head leaves the floor area clear and allows easy access to conveyor and head for positioning, tilting, and other adjustments.

Each wheel floats independently of the others, and vertical positioning of the complete head is handled by a



Three-Wheel Suspended Work Head

screw-and-nut arrangement on the hanging column.

The unit may be ordered with either individual or unison wheel wear adjustment—controlled either manually or by automatic push button. Uniform work pressures are maintained either by individual air cylinders or by an automatic torsion-balancing unit.

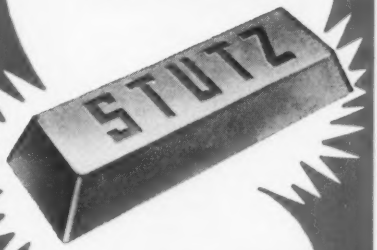
Manufacturer: Murray-Way Corporation, P.O. Box 180, Birmingham, Michigan.

For more data circle **29** on Postpaid Card

for STEEL BUFFING

STUTZ

Sensational



SS-271-H Compound

- *Fastest Cut*
- *Lowest Price*
- *Easiest to Clean*
- *Biggest Seller in the Midwest.*

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Please send me a sample bar of STUTZ SS-271-H STEEL BUFFING COMPOUND.

HAND BAR or Applicator Size 2" x ___ x ___

Name _____
Firm _____
Title _____
Address _____
City _____ State _____

the STUTZ COMPANY
Complete Metal Finishing Supplies & Equipment
4450 Carroll Ave. • Chicago 24, Illinois

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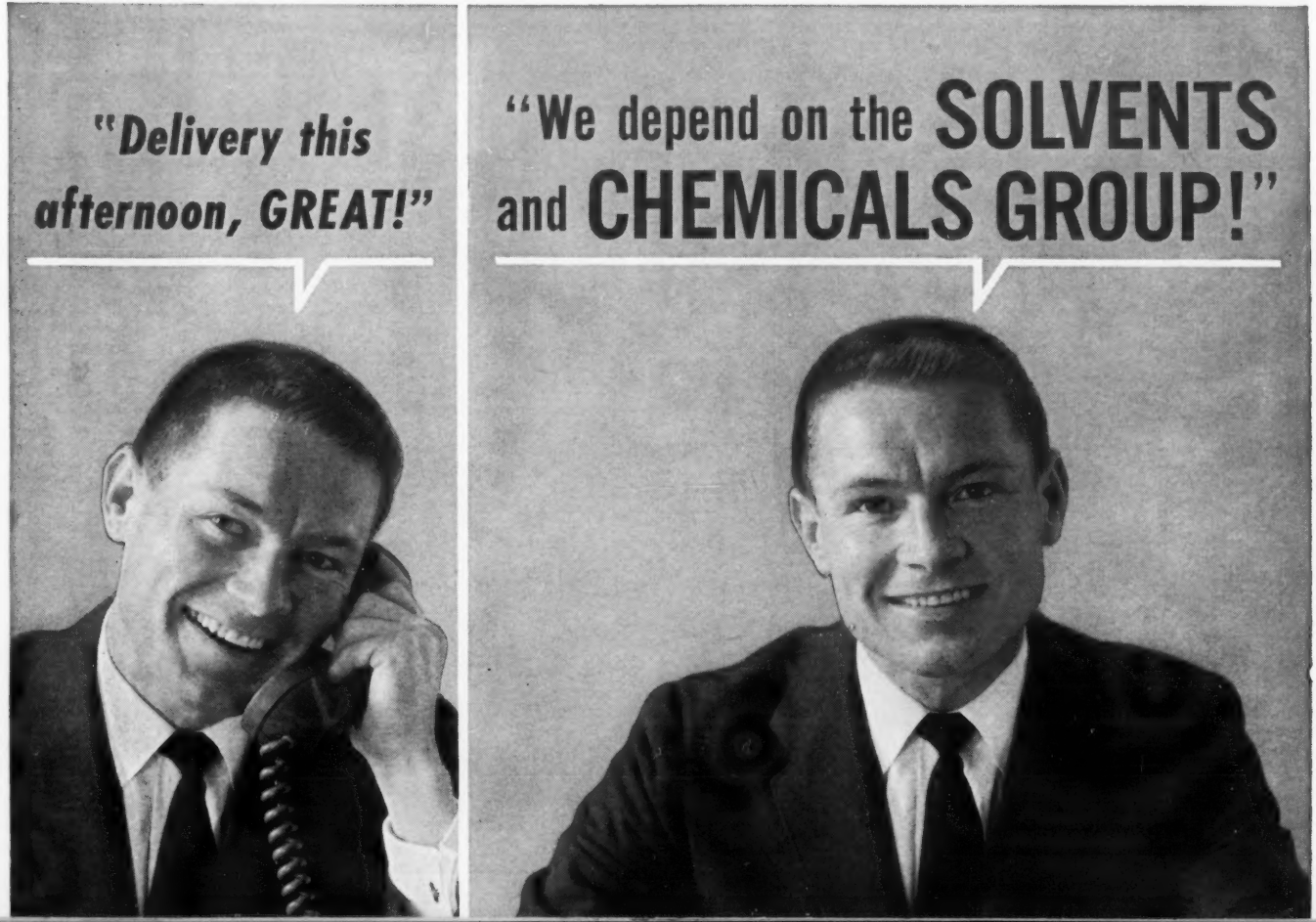
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On-time delivery is more than a service with The Solvents and Chemicals Group . . . it's an art! Each Solvents and Chemicals group salesman takes **special** pains to understand the delivery requirements of every account he services. With these firmly in mind, he discusses them with our personnel skilled in moving packaged or bulk products quickly at maximum economy to the purchaser. From these conversations, delivery schedules are evolved which take into consideration your receiving facilities . . . volume requirements . . . plant location . . . and type of product ordered. See for yourself if this genuine interest in your problems isn't the most economical way to get fast delivery of ⟶

Aliphatic Petroleum Naphthas, Alcohols and Acetates, Alkanolamines, Aluminum Pigments, Petroleum and Coal Tar Aromatic Solvents, Chlorinated Solvents, Glycerine, Glycols and Glycol Ethers, Ketones and Esters, Plasticizers, Resinates, Rosins, Synthetic Resins, Surfactants, Terpene Solvents, Waxes.

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One-Coat Organosol Coating

Sterilkote 360 organosol coatings adhere to unprimed metal. Laboratory tests indicate the one-coat organosols are more abrasion resistant than conventional coatings requiring two coats, the manufacturer reports.

Sterilkote one-coat organosols may be applied by manual, automatic or electrostatic spray equipment as well as by regular and reverse roll-coaters. The baking cycles are flexible and can be varied to suit different production ovens.

These organosols are highly decorative, can be supplied in many colors. Smooth finishes and textured finishes are possible.

Manufacturer: Bradley & Vrooman Co., 2629 S. Dearborn St., Chicago 16, Illinois.

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★ ★ ★

Deburring Machine Saves on Floor Space

A compact deburring machine recently introduced by Almco Precision Finishing takes up only 4.8 square feet of floor space, holds two cubic feet. Each octagonal container measures 16 by 8 inches. A single-compartment barrel measuring 16 inches in length and diameter is available as optional equipment with this machine.

Almco's Compact Deburring Machine

A wide variety of metal parts can be finished in the unit.

Manufacturer: Almco, Precision Finishing, Queen Products Div., King-Seeley Corp., Albert Lea, Minn.

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★ ★ ★

Desk-Size Unit For Hard Anodizing, Plating

Allen Aircraft Products has announced an electrolytic processing unit that's designed primarily for hard

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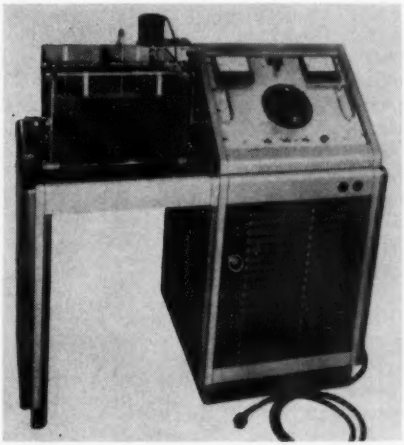

Allen-Dizor Electrolytic Processing Unit

anodizing. The unit also can be used for decorative anodizing, electroplating, chemical and electrochemical milling, electropolishing, electrolytic cleaning and etching.

Basic components of Allen-Dizor Model 500 are (1) lucite plating tank, equipped with anode and cathode racks, cooling coil, and agitator; (2) 20-ampere rectifier; (3) a ¼-ton refrigeration unit; (4) a housing for the rectifier and refrigeration unit. Optional equipment includes an immersion heater.

Typical uses: hard anodizing of aluminum molds, dies, or wear plates; salvaging machine or production parts with hard chrome plate or hard anodizing; and restoring the lustre of old jewelry. One company employs the Allen-Dizor to recover valuable aluminum parts containing a broken tap or drill by anodic "de-plating" of the tool steel.

Manufacturer: Allen Aircraft Products, Inc., Ravenna, Ohio.

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PRODUCTS FINISHING

431 Main St. • Cincinnati 2, Ohio

Disposable Filter Cartridges Remove Particles, 10-75 Microns

The Micro-Wynd disposable filter cartridge recently introduced by Cuno Engineering Corporation removes particles in the 10-75 micron range from plating solutions and other liquids.

Micro-Wynd

According to the manufacturer, the Micro-Wynd filter traps progressively finer particles from outside diameter to core, maintaining a consistent flow rate with minimum risk of loading. The Micro-Wynd filter cartridge ends are wound square with the core axis, so that any number of cartridges can be assembled end-to-end in tiers, without sealing devices.

Manufacturer: The Cuno Engineering Corp., 80 S. Vine St., Meriden, Connecticut.

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Small Demineralizer

A replacement-cartridge demineralizer with capacity of 25 g.p.h. consists of a pressure-type cartridge holder equipped with a direct-reading Purity Meter calibrated in parts per million impurities and ohms electrical resistance. The meter indicates water purity at all times and also shows when to replace the cartridge.

Small Demineralizer

Manufacturer: Barnstead Still and Sterilizer Co., 130 Lanesville Terrace, Boston 31, Mass.

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★ ★ ★

Dipping Process Produces Drip-Free Finish

A recently developed process known as the Smart Controlled-Withdrawal Dipping Process produces drip-free finishes by using a dip tank with a hydraulic mechanism that raises and lowers the tank. Developed in conjunction with the J. O. Ross Engineering Division of Midland-Ross Corporation,

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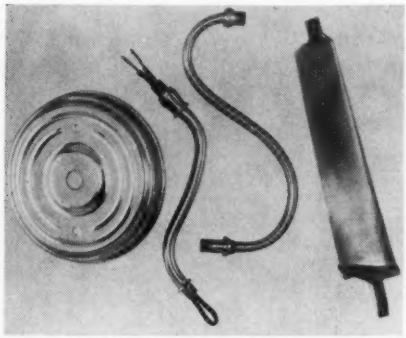

Typical small and intricate parts painted using the Controlled-Withdrawal Dipping Process.

the process, basically, is as follows:

The parts to be painted are mounted on flight bars of equal length. These are hung from a constantly moving monorail conveyor, that goes through a power spray washer and phosphatizing unit, or vapor spray degreaser.

After a sufficient cool-down cycle, the flight bars loaded with parts to be finished are transported to a mechanical transfer, where a pair of walking beams pick the flight bars individually from the moving monorail conveyor and accumulate them, over the tank.

The hydraulic mechanism *raises the tank* until the parts are all immersed in the coating, then immediately retracts at an absolutely even speed of 4 to 12 inches per minute.

By slowly withdrawing the tank full of coating material, excess liquid is drawn off the parts by capillary action and surface tension. The film of paint remaining on the parts is even, uniform, and free of drips.

The accumulated flight bars are then automatically transferred to an area beyond the dip tanks, where they are individually transferred back onto the moving monorail conveyor.

The parts then go through an oven.

(continued)

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Aggressive, qualified dealers are now being selected to represent the new SWECO line of Vibro-Energy Finishing Mills. Leading national manufacturer of *three-dimensional,* high-frequency vibration processing equipment—Screen Separators and Wet Grinding Mills—soon will announce successful adaptation of proved Vibro-Energy principle to finishing applications for metal, ceramic and plastic parts.

Extensive lab development and field tests now complete. Performance and selling advantages superior to present market equipment: reduced finishing time and maintenance cost, minimum power and floor space required, higher overall efficiency, plus lower initial and installation costs.

Vigorous national advertising, publicity, merchandising and sales promotion plan ready to support. Industry introduction scheduled for Western Metal Exposition, L. A., Mar. 20-24.

Write or phone today for complete product prospectus and franchised dealer application. For prompt attention contact: A. A. Ficery, General Sales Manager, Vibro-Equipment Division, Southwestern Engineering Co., 4800 S. Santa Fe Ave., Los Angeles 58, Calif. (LUdlow 3-6262).

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A zoned oven is used. The first zone operates at a lower temperature so that solvents can be evaporated from the wet coating without blistering, before the high temperature in the second zone cures the organic coating.

This process is useful for coating any product that has no cavities or recesses to trap excessive quantities of coating or to trap air, leaving an uncoated area when immersed vertically in the coating material.

The Smart Process is flexible, and it is possible to apply prime and finish coats and also different colors to different objects carried by the same conveyor.

The originator of the process is A. W. Smart, consultant, 48 Jackson Ct., Hempstead, N. Y.

Manufacturer: J. O. Ross Engineering, Div. of Midland-Ross Corp., 730 Third Ave., New York 17, N. Y.

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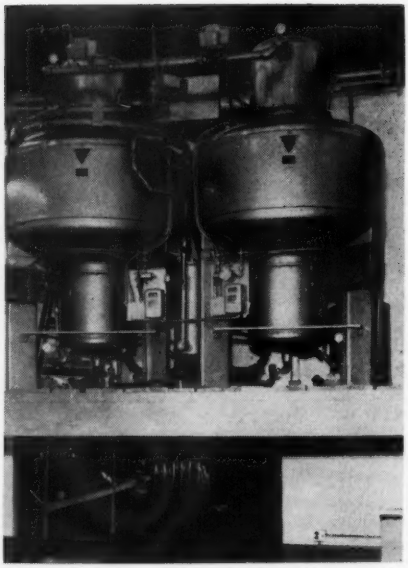
★ ★ ★

Solvent-Vapor-Recovery System Cuts Degreasing and Cleaning Costs

A patented process for recovering usable solvent from vapors usually lost during degreasing operations has been introduced by the Industrial Division of Vic Manufacturing Co.



Installation of a Vic Vapor Recovery System at Superior Plating Company utilizes an overhead platform, sacrifices no working area.

The Vapor-Recovery System captures solvent vapors evaporating during degreasing and cleaning operations by ducting them into a specially designed tank with a bed of activated carbon. Clear, reusable solvent is returned after a steaming and decanting process.

Vic Vapor Recovery Systems are

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Made of Durable, Lifetime Titanium Metal
That Will SAVE YOU TIME and MONEY
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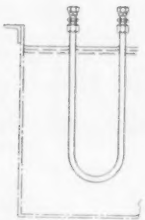

PLATING PRODUCTS, Inc.
1509 N. WASHINGTON • KOKOMO, IND.

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available in 11 different automatic and manual models.

Manufacturer: Industrial Div., Vic Manufacturing Co., 1313 Hawthorne Ave., Minneapolis 3, Minn.

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★ ★ ★

Liquid-Blast Machine

A liquid-blast machine introduced by Hydro-Hone Corporation is designed for use in plating rooms, machine shops and in other areas where cleaning and surface abrasion are required.

Specifications: Uses maximum of 20 c.f.m. compressed air; pump is rated at 40 g.p.m.; abrasive change in five minutes; electrically controlled solenoid valve controls air supply and window-washing mechanism.

Manufacturer: Hydro-Hone Corporation, 11055 S. Palmer Ave., South Gate, Calif.

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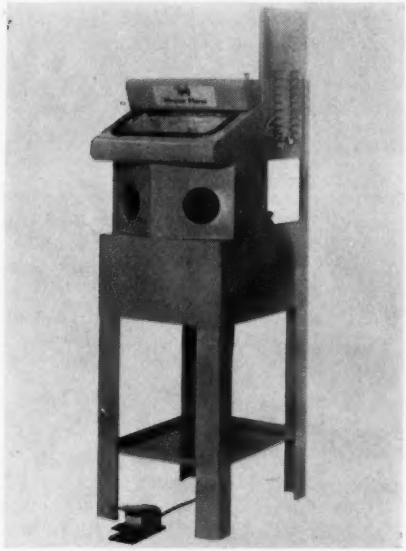

The Hydro-Hone Liquid-Blast Machine

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Rubber Nozzle for Vapor Blasting

A lightweight rubber nozzle for wet or vapor blasting machines.

Easy handling, requires no counterbalancing. Parts are not damaged if

Peenamatic Blasting Gun, Model 1708: rubber nozzle is easier to manipulate, doesn't nick.

touched by the gun. Metal parts are non-ferrous and clamps on the lengths of hoses supplied with the gun are stainless steel.

Manufacturer: Metal Improvement Co., 1721 E. 47th St., Los Angeles 58, Calif.

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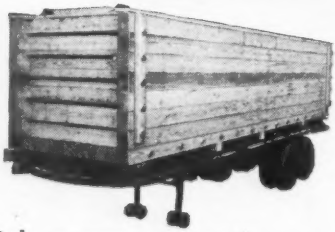
...or small to fit *your* needs



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Improved Sander Pad

A redesigned 5-inch pad for National-Detroit's Dual-Action Sander is designed for heavy duty, yet weighs no more than before. The recently introduced pad permits sanding contours and up to right angles. It utilizes the full area of the abrasive disc, since the attaching screw does not go through the pad.

National's "Dual-Action" Sander scuffs or removes old finishes and eliminates hand sanding of prime and surface coats. The abrasive grains

Improved Pad for "Dual-Action" Sander

travel in a non-repeating path, and as a result, no heat is generated that will soften the paint and fill the abrasive. All abrasives may be used, from coarse to No. 320 grit.

Manufacturer: National-Detroit, Inc., 2810 Auburn St., Rockford, Ill.

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★ ★ ★

Equipment for Steam Cleaning-Phosphatizing Large Equipment, Structures

The Mark IV, a machine specifically designed for use in cleaning and phosphatizing items too large or too bulky

(continued)

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431 MAIN STREET **CINCINNATI 2, OHIO**

to be immersed or carried through spray washers.

The unit is basically a steam-cleaning apparatus with three tanks: one for steam cleaning solution, one for detergent used to clean surfaces for phosphatizing, and the third for a phosphate-coating solution.

All components necessary for cleaning and phosphatizing are included: motors, pumps, guns, nozzles, tanks, and so on. Unit is furnished with its own steam source or for connection to plant steam. Provisions for high-temperature or cold-water rinsing are included.

Chemicals formulated especially for use in this machine are also available.

Manufacturer: Kelite Corporation, 81 Industrial Rd., Berkeley Heights, New Jersey.

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For cleaning metal, wood and plastic surfaces before painting. Order today through your supplier.

DETRO SALES CO., INC., *Culver City, Calif.*
Standard of the Finishing Industry Since 1934
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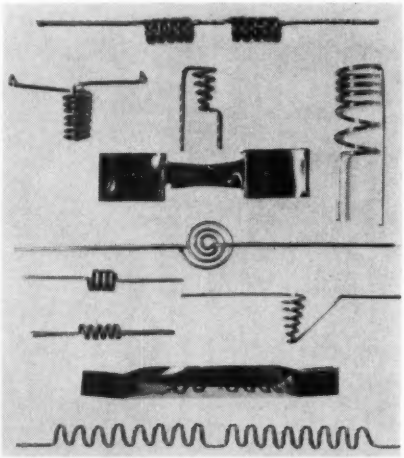
Filaments and Boats for Metallizing

Tungsten, tantalum and molybdenum filaments and boats for use in vacuum metallizing have been introduced by the Electronics Div. of Allen-Jones, Inc.

These products are said to be processed to high standards of purity and accuracy. All parts are stress relieved



Filaments and Boats: for vacuum metallizing

so that they will maintain their shapes during use.

Uses: processing electronic components; coating of optical parts; decorative coating; manufacturing precision instruments.

Manufacturer: Electronics Div., Allen-Jones, Inc., 1345 Gaylord Ave., Long Beach, Calif.

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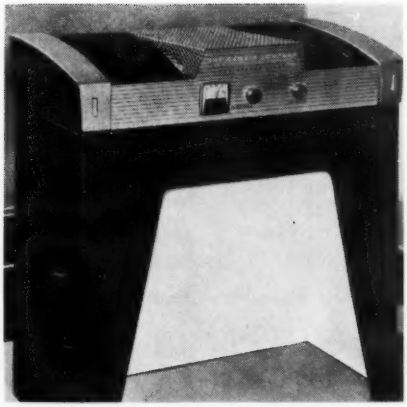
★ ★ ★

Light Source For Color Matching

An instrument which simulates various types of illumination has been introduced by Gamain Co.

The Gamain Generator reconstructs



Gamain Generator: improves color matching

natural daylight and artificial illumination so that colors can be compared under carefully controlled conditions.

The operator produces the illumination desired by controlling incandescent lights, fluorescent lamps and color filters. With the various settings, illumination of stores, offices, homes, factories and natural daylight can be simulated.

Manufacturer: The Gamain Co., 5th and Richmond, Kansas City, Mo.

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★ ★ ★

Electrocleaner for "Problem Soils"

An electrocleaner formulated to eliminate smut problems and provide effective cleaning action on "problem soils."

Designated Diversey No. 1107, the compound is primarily intended for ferrous metals, but is also highly effective on copper and brass.

The high conductivity of Diversey No. 1107 solutions is said to reduce current requirements and processing time. The product's foam characteristics control fuming, solution spray and hydrogen explosions. The water

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2 — Globe barrels
2 — Roto-Finish — DW-36-2 Rubber
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2 — Acme A2
3 — Acme B10
2 — Divine Model VM-10
15 — Holland 5 H.P. — 10 H.P.
4 — Gardener 5 H.P. — 7½ H.P.
6 — Divine Idlers

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2 — Green Selenium 5000 A, 6 V, 440/3/60
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1 — 5000/2500 ampere, 6/12 Volt 40° Chandeysson, Synch. 4
2 — 7500/3750 ampere, 6/12 Volt Chandeysson, Synch. 40°
2 — 6000/3000 ampere, 6/12 Volt, Electric Products and Chandeysson, Synch.
1 — 6000/3000 ampere, 9/18 Volt, 40°C Chandeysson, Synch. Exciter-in-head.
2 — 5000/2500 ampere, 6/12 Volt, 25°C Chandeysson, Synch.

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softening action of No. 1107 provides maximum scale control in the tank and prevents hard water film from depositing on the surface being treated.

Manufacturer: The Diversey Corp., 1820 W. Roscoe St., Chicago 13, Ill.

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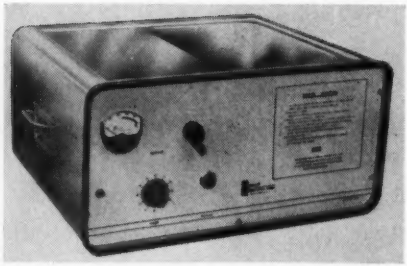
★ ★ ★

Self-Contained Ultrasonic Cleaner

Both the generator and cleaning tank are housed in a one-piece polished stainless steel wrap-around cabinet in Model 940 ultrasonic cleaner.

Minimum controls are required for operation of this 250-watt unit. The front panel mounted controls consist of "On-Off" switch (for continuous operation); "Timer" (for 0-15 minute operation with automatic shut-off);



National Ultrasonic's Model 940 Cleaner

and "Tuning" knob and meter. Generator capacity: 250 watts average, 1000 watts peak; single tube in a half-wave self-rectifying oscillator circuit. The wrap-around cabinet is of 304 stainless steel.

Manufacturer: National Ultrasonic Corp., 111 Montgomery Ave., Irvington 11, New Jersey.

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★ ★ ★

Rectifier Stacks

Selenium stacks for rectifiers have been introduced by Ramm Rectifier Co., Incorporated.

These units are available in three-phase, half-wave, six-phase half-wave and three-phase bridge models.

Complete specification sheets for the replacement stacks are available from the manufacturer.

Manufacturer: Ramm Rectifier Co., Inc., 527 Faile St., Bronx 59, N. Y.

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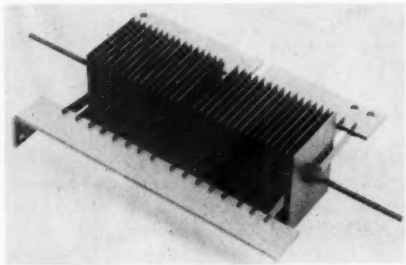

Ramm Rectifier Replacement Stack

For Platers, Silversmiths, Jewelry Mfgrs., Makers of Watches, Clocks and Electronics and other metal finishers.

Supplied in straight or crimped brass, steel, nickel silver or stainless steel wire in sizes .0025 to .006 and in bristle, fibre or Nylon. Special sizes and shapes to order.

Write (Dep't. P) on your letterhead for catalog and price list.

DIXON & RIPPEL, INC. Box 116 Saugerties, N. Y.
ESTABLISHED 1836

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Hydrochloric Acid Inhibitor

An inhibitor for hydrochloric acid, Atcor HC, has been developed by Atlas Powder Company for use in pickling and acid-cleaning applications. It is an isopropanol solution of a complex, high-molecular-weight amine blend which forms an organic film on metallic surfaces and prevents the hydrochloric acid from reacting.

Manufacturer: Atlas Powder Co., Wilmington 99, Del.

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★ ★ ★

Metal-Belt Double Conveyor

A four-sided "moving tunnel" conveyor is useful for such applications as a takeoff unit for an extruder or for the continuous foaming of plastics such as rigid polyurethane. All four belts are driven by a single drive unit.

The height of the rectangular cross section is easily adjusted by raising or lowering the top conveyor. Adjustable spring mounting of the top conveyor compensates for variation in output of the extruder or foaming head and also permits control of working pressure.

All four belts run on ball bearing rollers.

Manufacturer: M-H Standard Corp., 515 Communipaw Ave., Jersey City 4, N. J.

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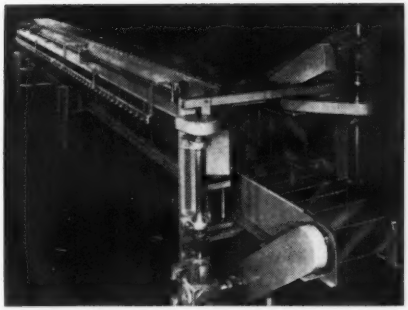

M-H Standard Conveyor: four metal belts

In WOOD FINISHING you Need Bond® TACK CLOTHS

IN ROLLS
Cut off any size piece as needed.
IN BULK
Size is 18" x 36"—folded to 4½"x 18" or 9" x 18" for ease of handling. Cut and folded—ready to use.

To Insure a SPECK-FREE FINISH— IMPROVE QUALITY—SAVE TIME AND WORK!

There's a big difference between a finishing job where every speck of dust has been removed—and the poor-quality finish resulting from a dusty surface. A quick wipe with a Bond TACK CLOTH before finishing is real economy—it insures a dust-free surface every time!

There's a big difference in TACK CLOTHS, too—that's why BOND produces four different meshes of cloth with several types of formulation to give you the cloth that best "fits" your special needs, whether wood or metal surfaces are involved.

Packed in 150 yard rolls of 36" wide cloth or in handy cartons, as you prefer. Also individually packed in Glassine Envelopes—144 to the carton. Stays soft and tacky until the last bit is used up. Choice of Standard, extra Tacky or less Tacky—in WHITE or in GOLD.

COMPARE RESULTS — SAMPLES SENT UPON REQUEST FOR PROOF-TEST!

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Metals Memos

News about metals and metal products . . .

Small Stove of Stainless Steel

A little stove with a thousand uses has just made its way to market with a "cloak" of stainless steel. Not much bigger than several cigarette packs, the new pocket stove packs enough heating punch to cook a complete meal quickly.

The Taykit "101" Pocket Stove is just 5 inches by 4½ inches by 1⅞ inches, fits easily in a man's pocket or the glove compartment of an automobile. It weighs 1½ pounds.

The stove could also serve as a valuable piece of equipment in a survival kit for aircraft, aboard ship, civil defense, hospitals and other areas. It has a single burner that delivers enough heat, even in high winds, to prepare outdoor meals.

The sides, top, grid, burner, and deflector are made of type 430 stainless steel, supplied by Allegheny Ludlum Steel Corporation.

This mighty mite is made by Taykit, Inc. of Stryker, Ohio.

A special advantage of the new stove is its ability to use almost any type of fuel: all kinds of gasoline—white, naptha, regular or ethyl—outboard motor mixture, lighter fluid, and even kerosene. Usually only unleaded gasoline can be used in such appliances.

One filling of the 5-ounce fuel container will burn for 90 minutes. There is no pump to keep pressure high. The stove regulates itself and after being lit creates its own pressure of from 9 to 12 pounds. Each stove is factory tested at up to 30 pounds pressure.

Another interesting marketing area turned up when one of the stoves was used to remove wallpaper and paint from a home by the owner. The stove burns while in any position and with the use of the flame-guard the stove acts as a torch, similar to a blow torch with a more diffused flame.

Free Reprints

Limited quantities of reprints of the following articles from PRODUCTS FINISHING are available to readers without charge. To obtain reprints, circle corresponding number on card opposite page 136.

166. *Adams & Westlake's "Stoppage-Proof" Anodizing System.*
167. *Adolph Plating: A Mechanized Job Shop.*
168. *Airless Spray Painting: Machinery Manufacturer Cites Advantages.*
169. *Cadillac Fights Corrosion.*
170. *Chemical Deburring Solves Problem for A. C. Spark Plug.*
171. *Chrysler's New Flow-Coat Installation.*
172. *Compact System for Painting Metal Cabinets.*
173. *Control of Chromium Plating Baths.*
174. *Custom Coater Applies Catalyzed and Plastisol Coatings.*
175. *Coolers and Heaters for Anodizing.*
176. *Drapery Hardware Finished by Plating and Painting.*
177. *Editor on Tour.*
178. *Electrocleaning: A Report on Current Practice.*
179. *Fast Dry Paint Speeds Car Refinishing.*
180. *Finishes Tested by Sun and Weather.*
181. *Finishing Appliance and Automotive Trim.*
182. *Finishing Facilities for a Modern Railroad.*
183. *Finishing Floor Registers and Grilles at The Auer Register Co.*
184. *Finishing Procedures at Guide Lamp.*
185. *Finishing Zippo Lighters.*
186. *Flat Polishing Specialists.*
187. *Flow Coat Finishing of Steel Roof Deck.*
188. *Ford's Experiences with Water-Borne Paints.*
189. *High Production and Safety Planned Into Sheet Metal Finishing System.*
190. *How C. W. M. Electroplaters Reduced Manual Handling.*
191. *How the Paint Warmer Aids Finish Application and Quality.*
192. *How to Clean Electrotypes Before Chromium Plating.*
193. *How to Train Buffing Foremen and Operators.*
194. *How Westinghouse Paints Circuit Breakers.*
195. *How Boeing Finishes the B-52.*
196. *Improve Your Phosphate Coatings.*
197. *How Wet Blasting Helps a Hard Chrome Plater.*
198. *Improved Buffing Techniques.*
199. *Is Your Plating Rectifier Defective?*
200. *Job Shop Specializes in Vacuum Metallizing.*
201. *Koch Uses Hand-Held Electrostatic Gun to Coat Brass Furniture.*
202. *Large Oven Bakes Stacks of Painted Signs.*
203. *Modern Activated Carbon Practice.*
204. *New Machine Smooths Contoured Parts.*
205. *Paint Stripping Technology Today.*
206. *Painters' Problems.*
207. *Plastisol Coating of Wire Products.*
208. *Plating Die Castings in Conveyorized Plant.*
209. *Pre-Cut Masks Speed Tractor Production.*
210. *Production Job Painting: Conveyors, Electrostatic Spray Answer Needs.*
211. *Properties and Uses of Catalytic Coatings.*
212. *Radiant Firing Lengthens Life of Galvanizing Kettle.*
213. *Recover That Plating Waste!*
214. *Roller Coat Painting Aluminum and Steel on Same Line.*
215. *Roller Coating Line Finishes Seals for Steel Strapping.*
216. *Selecting Cleaning and Surface Preparation Equipment.*
218. *Silicones in Industrial Finishes.*
219. *Take Another Look at Airless Spray.*
220. *Techniques for Coloring Anodized Aluminum.*
221. *Those Versatile Vinyls.*
222. *2400 Pails Per Hour by Airless Spray.*
223. *Water-Dispersed Paints for Product Finishing.*
224. *What Vacuum Metallizers Should Know About Electrostatic Spraying.*
225. *Westinghouse Uses Time Study to Increase Output.*

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Polishing, Buffing, Degreasing, Cleaning, Barrel Finishing, Plating, Anodizing, Phosphatizing, Baking, Vacuum Metallizing, Chromate Coating, Paint Finishing, Waste Treatment.

50. Strippable Spray Booth Coating
Information on Liquid Envelope. This product is sprayed on the walls of spray booths. As overspray accumulates it can be stripped off easily in large sheets, then booth is recoated. Better Finishes & Coatings, Inc.

51. Equipment for "Tri-Finish" Process
A six-page folder details the process, equipment and cost of trichlorethylene-based cleaning-phosphatizing-painting system. Excellent drawing and clear descriptions of this integrated, compact painting system. It cleans, phosphatizes and paints metal parts in a single enclosure. G. S. Blakeslee & Co.

52. Tack Cloth
Literature on treated cloths that pick up dust and lint prior to paint finishing. Bond Chemical Products Co.

53. Metal-Processing Products
A six-page folder describes the products made by Bruce Products Corporation: buffing compounds, drawing compounds, cutting oils, non-rust oils, spray booth coatings, cleaners, polishing wheels, die-cut release agents. Bruce Products Corp.

54. Buff Cloth
Brochure describes research efforts to develop an improved cotton cloth for use in buffs. Tells how this cloth gives better control in buffing. Deering Milliken, Inc.

55. Chromates, Colored
Data on a method of producing colored chromate coatings on zinc plated parts. Colors produced include strong, attractive golds, yellows, blues, greens, violets, reds, brass and copper. The Chemical Corporation.

56. Complete Finishing Systems
Catalog No. 200 describes company's design, fabrication and installation services for complete finishing systems. Includes information on equipment for pre-paint treatment, paint application, paint drying and baking, make-up air and exhaust systems. Contains descriptions of typical installations and detailed information on individual components. Cincinnati Cleaning & Finishing Machinery Co.

57. Immersion Heaters, Fused-Quartz
A four-page folder describes Clepco fused-quartz immersion heaters for difficult acid heating jobs. Includes specification tables, photos of typical installations, list of features, application data, information on controls and operating costs. Cleveland Process Corp.

58. Rhodium Plating Instructions
Handy pocket-sized booklet gives complete instructions for rhodium plating, includes data on solution preparation, work preparation, temperatures and current densities, tanks, anodes, and so on. Sigmund Cohn Mfg. Co., Inc.

59. Metallizing Bulletins
Series of bulletins on vacuum metallizing. Consolidated Vacuum Corp.

60. Bronze Powders
New color card shows 44 brilliant metallic bronze powders. Golds, coppers, aluminums, grays, browns and pastels. Includes complete directions for use and application. Crescent Bronze Powder Co.

61. Paint-Decorating Equipment
Information on a line of paint-decorating equipment: high-pressure mask washers, nickel electroformed masks, holding fixtures, automatic painting machines. Also vacuum plating racks. Deco Tools, Inc.

62. Trichlorethylene Cleaning Solvent
A four-page folder gives specifications for Perm-A-Clor and Perm-A-Clor NA, solvents specifically made for metal degreasing. Detrex Chemical Industries, Incorporated.

free literature . . .

63. Tack Rags
Four-page folder describes advantages of Detroit Handy Tac Rags. Detro Sales Co., Inc.

64. Air Compressors
Catalog C-51 describes complete line of air compressors, components and accessories. Electric and gasoline-engine models. Tips on selecting a compressor. The DeVilbiss Co.

65. Cleaner-Phosphatizer
A four-page folder on Divobond, a material that cleans and phosphatizes in one operation, produces no scale. Diversey Corporation.

66. Chemical Services
Eight-page booklet describes comprehensive chemical services in areas of equipment and missile cleaning, water and waste treatment and processing. Dow Industrial Service.

67. Rectifiers
Catalog LS describes silicon-diode d.c. power supplies. Dresser Electric Co.

68. Industrial Ovens
An eight-page booklet on radiant infrared industrial ovens with ceramic infrared generators. Lists advantages, typical applications, shows various shapes and illustrates several installations where these units are now in use. Dry Clime Lamp Corporation.

69. Cleaners for Electroplating and Metal Finishing
Folder contains information on soak and electrocleaners for ferrous and non-ferrous metals. General description, list of properties, uses for each material. DuBois Chemicals, Inc.

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70. Stripper
Folder describes No. 153 Stripper, a nonflammable volatile solvent-type stripper with very little toxicity. Has excellent penetrating properties, is said to be useful in removing coatings that are difficult to remove, such as melamines, epoxies, vinyls, plating rack coatings. Dytex Chemical Co.

71. Drum Trucks
Information on a new hand truck for fast handling of drums. Many new features. Economy Engineering Co.

72. Spray-Wash Cleaner
Sprean 66, a powdered alkaline cleaner for spray washing of steel, copper, brass, aluminum. High detergency; rapidly removes oil, drawing compounds, solid dirt, shop soils. Eliminates excessive foaming, inhibits rust formation, prevents scale buildup. Data sheets give full details, including operating instructions. Enthone, Inc.

73. Copper Anode
Information on the new Asarco-Max copper anode. Federated Metals Div., American Smelting & Refining Co.

74. Copper Coatings
Bulletin 1448. Amchem Cuprodine for producing bright, adherent copper coatings on carbon and stainless steels. Amchem Products, Inc.

75. Painting Machine
Information on the new Gasway Kinetic Kurtain Coater. Gasway Corporation.

76. Airless Spray
An eight-page folder on the Hydra-Spray airless spray process. Tells how process increases savings, what makes these savings possible, how the airless spray unit functions. Describes various models, guns, accessories. Gray Company, Incorporated.

77. Paint Conditioner
Information on the Bull Dog Shaker, a compact machine that shakes one- to five-gallon cans of paint, agitating contents to ensure thorough mixing without opening the can. Grenier & Co., Inc.

78. Electroplating Equipment
An eight-page bulletin describes Frederick Gumm Chemical Company's line of plating equipment and supplies. Equipment includes immersion heaters, steam generators, vapor degreasers, spray washing machines, temperature controllers, rectifiers, filters, tanks, racks, baskets and plating barrels. Also includes information on several instruments useful in finishing. Frederick Gumm Chemical Co., Inc.

79. Dust Collectors
Catalog No. DK-820 describes practical, effective ways of solving dust, dirt and mist-collecting problems. A 16-page catalog. Contains explanations of how to achieve maximum results with various models in the line of Hammond DusKolectors. Installation recommendations, specifications, etc. Hammond Machinery Builders, Inc.

80. Electroplating Processes
A 24-page bulletin gives a brief description of 18 different plating processes, including three new nickel plating processes. New conversion coating processes for aluminum and zinc are also described. Hanson-Van Winkle-Munning Co.

81. Automatic Polishing Equipment
Information on automatic polishing and buffing machines. Harper Buffing Machine Co.

82. Copper, Cyanide Bright
Four pages on Cynorex, a high-speed, high-efficiency bright copper plating solution that produces smooth, ductile deposits. Harshaw Chemical Co.

83. Deburring Process for Zinc Die Castings, Chemical
Data sheet on Chemburr 3 and Chemburr 5, combinations of strong acids developed especially for chemically deburring and polishing zinc die castings. Heatbath Corporation.

84. Heat-Transfer Equipment for Corrosive Chemicals
Bulletin 156 describes Nocordal impervious graphite heat-transfer equipment for anodizing, electroplating, pickling. External heat exchangers, immersion heaters, electric immersion units, steam jet agitators. Heil Process Equipment Company.

85. Vapor-Degreasing Stabilizers
Bulletin 70 discusses the importance of stabilizers in degreasing solvents, tells about the stabilizer used in Nialk trichlorethylene. Hooker Chemical Corp.

86. Heavy-Duty Cleaner
Ahcoloid No. 202 is a heavy-duty soak-type alkaline cleaner which removes oily soils that accompany drawing, stamping, threading and similar operations. Data sheet gives complete details. Apothecaries Hall Div., Hubbard-Hall Chemical Co.

87. Rinse Aid
Information on Rins-Aid, an additive for rinse water. It prevents staining and tarnishing and hastens drying. R. O. Hull & Co., Inc.

88. Tack Rags
Literature on Ideal Tack Rags, specially treated cloths that pick up dust and other particles just prior to application of an organic finish. Ideal Chemical Co.

89. Finishing Small Parts
An advanced system for producing corrosion resistant organic finishes on fasteners and small parts is described in a technical bulletin that is entitled "A Two-Phase System for Producing Corrosion-Resistant Coatings Using Bulk Handling Methods." Reported performance of tested pieces shows the system will produce finishes to meet existing rust proofing specifications of fastener users, and can be engineered to meet anticipated stricter specifications. International Rustproof Corp.

90. Wood Tanks
Information on wood tanks for pickling and plating. Kalamazoo Tank & Silo Co.

91. Brightener for Barrel Zinc Plating
Information on Durobrite Addition Agent 26, a new liquid brightener specially developed for high-quality barrel zinc plating. Excellent stability. No bright dipping. DuPont, Electrochemicals Dept., Sodium Products Div.

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92. Ovens for Industry
"Ovens for Industry" catalog describes and illustrates many different types and sizes of industrial ovens. Kirk & Blum Mfg. Co.

93. Plating Course
Information on a correspondence course in electroplating. Joseph B. Kushner Electroplating School.

94. Stripping Copper
A 10-page booklet describes Liquid Sulphur, tells exactly how to use this material for removing deposits of copper. Sulphur Products Co., Inc.

95. Anti-Static Solution for Buffing Plastics
Complete data on Lea Lint-Off 7527, a solution that prevents buildup of static charges on plastics during buffing operations. Lea Manufacturing Co.

96. "No-Air" Spray Painting Equipment
Bulletin 404R describes airless hydraulic Dyna-Spray equipment and accessories. Specifications for four units, portable and stationary. Lincoln Engineering Co.

97. Vibratory Finishing
A 12-page bulletin shows what can be accomplished by vibratory deburring. Specifications for five models in Lorco line of vibratory finishing equipment. Lord Chemical Corp.

98. Wash and Rinse Machine
Information on a machine that's designed for cleaning parts between machining operations and prior to inspection. The MacLeod Co.

99. Electrocleaners
Information on Magnus electrocleaning products. Magnus Chemical Co., Inc.

100. Degreasing Small Parts
A 4-page folder on the Vibra-Degreaser, a cleaning unit that has a spiral elevator which eliminates need for fixtures, pans, etc., in degreasing small parts. Manpro Corporation.

101. Acid Coolers
Data sheet lists the advantages of Mayer packaged acid chillers, complete refrigeration and recirculation systems for anodizing, hard coating and plating. Mayer Refrigerating Engineers, Inc.

102. Plating and Processing Machine
Bulletin U-658. Four pages. Illustrates single-line automatic plating and processing machines. Meaker Co., Sub. of Sel-Rex Corp.

103. Coating with Nacreous Pigments
Four-page brochure discusses coating vehicles, techniques, undercoats, colors, spray-coating techniques and special color effects in applying pearlescent finishes. Mearl Corporation.

104. Blasting Machine
Data sheet on the Peenamatic Model 920 abrasive blasting machine with tumble action. For cleaning and deburring small and medium-sized parts. Metal Improvement Co.

105. Nylon Web Finishing Material
Information on "Scotch-Brite" finishing material, which is made by impregnating a tough nylon web with microscopic working particles. Scotch-Brite sections can be mounted on lathes, used on conveyorized machines, mounted on flexible shaft, or used as a pad, for hand work. The manufacturer recommends this product for use in metal blending, cleaning, finishing, and for correction of surface imperfections. Gives a consistent finish from beginning to end of a run. Minnesota Mining and Manufacturing Co., Dept. FH-59.

106. Paint Mixer
Data sheet on Miracle paint rejuvenators, which mix paint without removing the lid from the container, by shaking the can vigorously. Miracle Paint Rejuvenator Co.

107. Smut Remover
Data sheet on Al-Smut Remover, a chemical which removes smut from aluminum. Takes off anything except silicon residue, also brightens and deoxidizes. Mitchell-Bradford Chemical Co.

103. Drum-Handling Tools
Literature on a line of drum-handling tools and equipment: drum wrenches, drum upenders, carts and so on. Morse Mfg. Co., Inc.

109. Automatic Polishing-Buffing Machine
Folder describes and illustrates Murray-Way Junior Automatic Polishing and Buffing Machines. Includes list of advantages, description of features, specifications. Murray-Way Corporation.

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110. Safer Solvents
"Methylene Chloride for Raising Solvent Flash Points and Its Effect in 27 Solvents," a reprint of an article on a solvent that improves safety of many solvent combinations. Solvay Process Div., Allied Chemical Corporation.

111. Printed Circuits
Information on silk screens and ink for making printed circuits. Naz-Dar Co.

112. Airless Spray Equipment
An eight-page booklet gives complete details on Nordson airless spray equipment. This system makes use of both heat and hydraulic pressure in atomizing the paint. System and its components are described and illustrated in detail, common questions are answered. Nordson Corporation.

113. Barrel Finishing Machined Parts
A report on methods of barrel finishing machined parts such as aircraft gears tells how barrel finishing improves surface finish and fatigue strength, removes burrs, forms uniform radii and reduces production costs. Norton Co., Worcester 6, Mass.

114. For Rugged Cleaning Jobs
Bulletin No. 17B describes Oakite RR Cleaner, a strongly alkaline product for removing stubborn soils such as burned-on oil, grease, and dirt. Useful in cleaning tanks and in steam cleaning. Oakite Products, Inc.

115. Paint Stripper Additive
Information on Stripper X-28, a material that is added to caustic soda solutions to improve their ability to remove epoxies and other paints that are difficult to strip. Pennsalt Chemicals Corp.

116. Titanium Anode Baskets
A 4-page folder on scrap-saver anode baskets. Provide excellent electrical contact for both nickel and copper scrap. Resist corrosive solutions. Plating Products, Incorporated.

117. Thinners
Folder describes Kleensolv, a thinner used for cleaning equipment, hands, and so on; Synthesolv Reducer, for reducing synthetic enamels; Mistkote Spraying thinner, a lacquer thinner with a retarder that is said to improve flow, gloss and blush resistance; and other thinners. Potter Paint Co., Inc.

118. Replacement Stacks for Rectifiers
Specification sheets for selenium stacks used in replacing worn-out stacks in existing equipment. Ramm Rectifier Co., Incorporated.

119. Barrel Finishing Rollers
Model RA machines are basic drive units, which have rollers on which various sizes of barrels can be rotated. Rampe Manufacturing Co.

120. Government Specification Finishes
A four-page folder on government specification finishes: primers, lacquers, enamels, dopes, slushing compounds. Randolph Products Co.

121. Electrostatic Spray
No. 2 Process Brochure tells how Ransburg No. 2 Process can improve quality of painted products and cut costs at the same time. Ransburg Electro-Coating Corporation.

122. Overspray Collector
A four-page folder gives general information on RP paint arrestors, dry filters that remove overspray paint from exhaust air. Includes installation instructions, performance data, construction details. Research Products Corporation, Dept. 38.

123. Pearl Pigments
Properties, typical uses and general procedure concerning the application of pearl pigments. Complete technical data on pearl pigments. Rona Pearl Corporation, a division of Rona Laboratories, Incorporated.

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124. Precision Mechanical Finishing
A 30-page catalog on precision mechanical finishing and automatic finishing processes outlines in detail the various types of finishing and abrading processes such as grinding, deburring, descaling and polishing. Illustrations and detailed descriptions of conventional models, Roto-Matic automatic finishing machine, and newly developed Vibratron, which employs a vibratory abrasive action. Section devoted to abrasive chips and compounds points out factors involved in holding to precision dimensional tolerances. Roto-Finish/Ransohoff.

125. Printed Circuits Plating Developments
A four-page technical article offers solutions to problems having to do with plating printed circuits. Problems discussed: lifting or peeling of the copper foil after the circuit has been placed in service; deformation of the dielectric base material; softening of the adhesive or resin binder between copper foil and laminate; lifting of the electroplate foil caused by high-tensile stresses. Table gives recommended thickness of various electroplates used in printed circuitry. Sel-Rex Corporation, Dept. PF.

126. Industrial Washing Machines
Illustrated booklet describes various wash, rinse and dry machines. Also complete engineered conveyorized systems for handling, pickling, phosphatizing, oil slushing, soap coating, painting metal parts and products. The Alvey-Ferguson Co.

127. Stainless Steel In-Line Filter Chambers
Bulletin 402, a specification sheet on Model S-1200S stainless steel inline filter chambers. For filtering small or large volumes of liquids to microscopic clarity at pressures up to 100 p.s.i. Sethco Manufacturing Corp.

128. Cleaning Machine
Bulletin 107 describes the Simplicity Vibra-Washer, a machine designed to clean or process ferrous and non-ferrous machined parts, stampings and castings at high production rates. Shows how the machine is constructed, how it operates, etc. Industrial Washer Div., Simplicity Engineering Co.

129. Electroplating Equipment
Information on a line of electroplating and allied equipment: corrosion-test cabinets, barrel plating equipment, replacement barrels, plexiglas baskets, buckets and lab tanks. The Singleton Company.

130. Detergents
Four-page booklet entitled "New Horizons in Detergent Chemistry" lists and describes cleaning chemicals, phosphate coatings, water-wash compounds, steam-cleaning compounds, rinse aids, other products. Solventol Chemical Products, Incorporated.

131. Solvents
Information on acetates, alcohols, aliphatic hydrocarbons, alkanolamines, aromatic solvents, chlorinated hydrocarbons, glycols and polyglycols, glycol ether, other solvents. The Solvents and Chemicals Group.

132. Complete Finishing Systems
Literature on Spra-Con complete finishing systems for applying organic coatings. Data on components such as washers, ovens, flow-coat machines, conveyors, air make-up systems. The Spra-Con Company.

133. Square-Spray Nozzle
Literature on a spray nozzle which produces a wide, square spray. Designed for use where space is limited. Provides coverage in a short distance. Spraying Systems Co.

134. Spray-Nozzle Catalog
Nozzle-selection tables, descriptions of specialized types of nozzles, exclusive designs, plus 32 pages of flow charts, spray patterns, spray characteristics, and basic engineering data. Wm. Steinen Mfg. Co., Industrial Nozzle Div.

135. Anode Containers
Data sheet on anode containers with improved design. The Stutz Co.

136. Automatic Plating Machines
An eight-page bulletin on Stevens automatic rack processing and plating machines for electroplating, anodizing, stripping, cleaning, phosphatizing and similar immersion processes. Frederic B. Stevens, Inc.

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137. Selenium Rectifiers
A four-page folder gives specifications for complete line of vacuum-process selenium rectifiers. Syntron Co.

138. Etch Primer
Data on Gripalloy, an etch primer available in black and colors. Used as primer or finish coat. Tenax Finishing Products Company.

139. Cob Grit for Blasting, Tumbling
Information on corn cob grits that are used as tumbling media and in blast cleaning. Ti-Co Industries, Inc.

140. Brass Plating Solution
Technical bulletin on True Brite brass solution, which is available in a variety of colors. True Brite Chemical Products Company.

141. Exterior Lacquer Protects Aluminum
Information on Agateen 8-A clear lacquer for improving exterior durability of aluminum. Excellent adhesion, durability. Agate Lacquer Mfg. Co., Inc.

142. Chemical Polish for Aluminum
Information on Alchemize Chemical Polishing Concentrates. Alchemize Corp.

143. Chromate Conversion Coatings
Handy reference file on Iridite chromate conversion coatings. Allied Research Products, Inc.

144. PVC Tank Lining
A six-page brochure. Amer-Plate industrial lining, a dense, flexible polyvinyl chloride sheet for lining plating, pickling and other tanks and vessels. Protects steel and concrete from strong solutions. Two types available: one for existing installations, one for new work. Amercoat Corporation.

145. Anodes for Acid Copper Plating
Reprint of a technical paper that describes a synthesized anode containing small quantities of phosphorous, tellurium, selenium and silver. The Anaconda American Brass Co.

146. Felt Polishing Products
A 12-page booklet describes felt wheels, tells about typical applications; has table to aid in selection of felt wheels; table of specifications; directions for setting up and caring for felt wheels; maintenance "do's" and "don'ts"; other useful data. Bacon Felt Co.

147. Paint-Pumping Systems
Information on circulating and non-circulating finishing systems with air-operated pumps for supplying cold and hot paints. Balcrank, Inc.

148. Cold-Degreasing Fluid
Information on Barco Cold Metal Degreaser Q200. For use on ferrous and non-ferrous metals. Barco Chemical Products Co.

149. Paint Stripper
Brochure gives complete details on Epoxystrip, a paint stripper formulated to remove tough finishes easily. Beck Equipment and Chemical Co.

150. Plating Barrels
Complete catalog describes plating barrels of various sizes and types. Belke Manufacturing Co.

151. Used Polishing Equipment
Information on used buffing and polishing machines. J. Holland & Sons, Inc.

152. Electronic Adjustment Device for Buffing Machines
Literature on the Adjusta-Matic, a "packaged" electronic device that helps reduce wear on buffing wheels, cut compound consumption, produce more uniform finishes. Packer Machine Co.

153. Demineralizers
Catalog 127A. 20 pages. Tells about the difference between distilled and demineralized water; lists typical applications for demineralizers; tells how demineralizers operate; describes different types. Barnstead Still & Sterilizer Co.

154. Phosphatizing Processes
Literature on phosphatizing processes for paint bonding, flat polishing, cold drawing, extrusion. Neilson Chemical Co.

155. Chromium Plating Additive
Information on Diamond CPA 1800, an additive for chromium plating baths which improves throwing power of the solution and metallurgical characteristics of the plate. Diamond Alkali Co.

156. Spotless Solvent-Drying Process
Information on spotless drying of metal parts after electroplating or other liquid processing. Trisec drying solvent is used in specially designed equipment. Phillips Manufacturing Co.

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157. Automatic Loading Systems
Case histories of a variety of automatic loading operations in conjunction with automatic barrel plating. Detailed engineering drawings. Frederic B. Stevens, Incorporated.

158. Satin-Finish Nickel
Information on Satylite, a satin-finish nickel plate produced directly from the plating bath, without additional hand polishing or buffing. Useful in producing two-tone finishes by buffing raised letters or embossing so that bright plate is produced over satin-finish background. Udylite Corporation.

159. Masks for Precision Painting
A 20-page book describes spray masks for use in spray decorating plastics, stampings and die castings that have depressed or raised detail. Wm. M. Fiore, Incorporated.

160. Solvents and Thinners
Information on the characteristics of APCO solvents and thinners: Troluoil, Dryolene, Apcothinner, mineral spirits, others. Anderson-Prichard Oil Corp.

OPPORTUNITY SECTION

Classified Advertising

Space on this page is available for advertising of Services, Employment, Used Machinery & Equipment, Etc. Sold in inch units, one col. wide. Rate: $25 per col-inch.
PRODUCTS FINISHING, 431 Main St., Cincinnati 2, Ohio

SOUTH FLORIDA TEST SERVICE, INC.
Testing—Inspection—Research—Engineers
Consultants and specialists in corrosion, weathering and sunlight testing.
4301 N. W. 7th St. • Miami 44, Florida

INDUSTRIAL FINISHES SALESMEN
Experienced industrial finishes salesmen needed to cover our expanding business. Territories are growing in all the states within a 350-mile radius of Cleveland, Ohio. Our company is a leader in **products finishes,** and we can prove the superior quality of our coatings. If you are ambitious, but dissatisfied with your present company's limiting policies, investigate our excellent line and our liberal commission plan. Write: Sales Promotion Department, Ferbert-Schorndorfer Company, 12815 Elmwood Avenue, Cleveland 11, Ohio. All replies confidential.

HAVE GUN — WILL SPRAY
Established Manufacturer, specialists in Custom Finishing, desires subcontract work using Automatic Spray Equipment, Cromalox and Infra-red Ovens. If our facilities could be of service to you, write
CUSTOM COATERS, P. O. Box 22, Dover, Ohio or phone Dover, Ohio 6-5664.

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Advertise in PRODUCTS FINISHING
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SALES ENGINEER
National manufacturer of degreasers and metal washers has openings for Technical Field Engineers on sale of equipment and new processes. Only men of proven sales ability and aggressiveness need apply. Resume should include experience and education. All replies confidential. Our own men are aware of these openings. Box #32, c/o Products Finishing, 431 Main Street, Cincinnati 2, Ohio.

NEW AUTOMATIC DEGREASER
Never been used. Automatic cross rod conveyorized CIRCO degreaser. Vapor-Spray-Vapor. Complete, with solvent recovery still, pumps, storage tank, filters, work baskets, controls. Solid stainless steel construction, var. speed drive. Cap. 5000 lbs. steel per hr. Basket size 24" x 20" x 8" high. Original price $16,500. Best reasonable offer for quick sale.
CHEMICAL SERVICE CORP., 82 Beaver St., N.Y.C.

Distributors needed in several territories on cadmium and zinc plating brighteners and plating specialties. Advertising referrals and excellent discount. Write Box No. 31, c/o Products Finishing, 431 Main St., Cincinnati 2, Ohio.

news of the finishing industry

company news
new positions
new plants
meetings

NEW PLANTS

Metal & Thermit Opens Florida's First Detinning Plant

Metal & Thermit Corporation recently opened its new half-million-dollar detinning plant in Tampa.

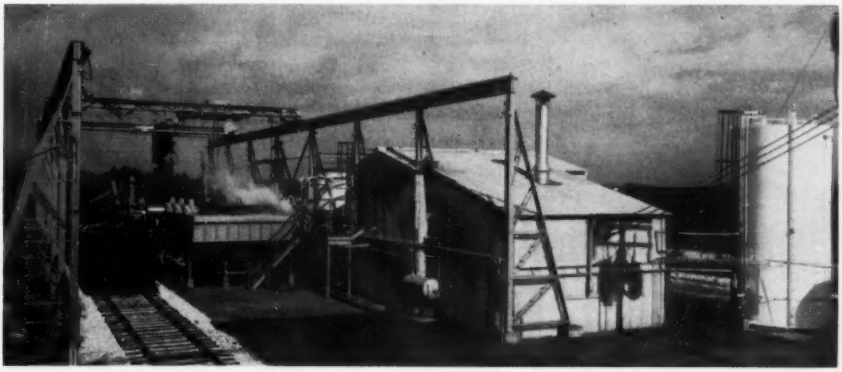
The plant will use a modern chemical process to recover tin from tin plate scrap. Because the United States is almost entirely dependent upon imports of tin to fill its needs, reclamation of this basic metal through detinning is important to industry.

Hull Moves Detroit Division

R. O. Hull & Company, Inc., has moved its Detroit Division into larger

(continued)

New Detroit Facilities for R. O. Hull



Metal & Thermit's Florida Detinning Plant: modern processing to recover tin

quarters at 66 East Ten Mile Road, Hazel Park, Mich.

The new facilities, the third expansion of R. O. Hull & Company, Inc. in Detroit in the last two years, are double previous facilities.

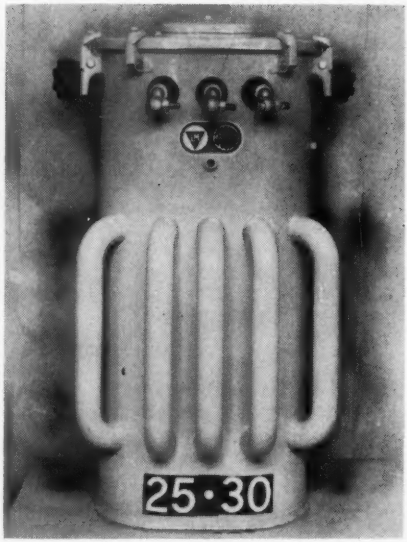
Expanded laboratory analytical services and local salt-spray testing will now be available to its customers, Hull says.

A complete line of plating barrels and spare parts will be carried at the Detroit plant.

Ross Engineering Moves Seattle Office

The Seattle office of J. O. Ross Engineering, a Division of Midland-Ross Corporation, recently moved into larger quarters.

Formerly at 823 Skinner Building, the Ross office is now located at 2909 Third Avenue, Seattle 1, Washington.



Transformers like this one, coated by the fluidized-bed process, pass some demanding tests at Line Materials, Inc. (Photograph courtesy The Polymer Corp., Reading, Pa.)

COMPANIES

Fluidized-Bed Coatings Pass Severe Tests

Engineers at Line Materials, Inc., Zanesville, Ohio, have proved that the coatings they are applying by the Polymer Corporation's fluidized bed method can take severe punishment.

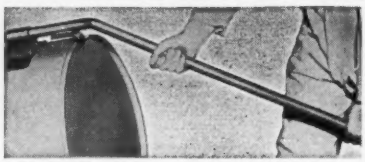
Perhaps the most severe test for coatings applied in this transformer manufacturer's plant is sandblasting—a process often used for removing paint. Reason for this test is that sandstorms in the Southwest abrade the coatings, make frequent repainting necessary. The best performance in sandblasting previously had been five seconds to expose bare metal. The Corvel fluidized-bed coating suffered only slight loss of gloss in seven minutes, showed no loss of film thickness.

A heat-compression test simulates the conditions for cover clips used to clamp the cover to the transformer tank. In service, coatings on these parts are subjected to considerable pressure plus heat from the sun and

MORSE DRUM UPENDER No. 32

Takes the strain and effort out of upending heavy drums. Has 40" handle offset 35° for top efficiency. Hefty 1¼" hook provides clearance for largest chime. 2½" x 8" toe plate spreads lifting pressure over large area to prevent drum damage. Order Several Today!

MORSE MFG. CO., INC. 762 West Manlius St., E. Syracuse, N.Y. **$8.40** FOB



For more data circle 405 on Postpaid Card

the transformer itself. Coated washers and test plates are compressed together under 700-inch pounds of torque. These test assemblies are then heated in 10-degree steps up to 280 degrees F. The fluidized-bed coatings show no softening up to 220 deg. F.—considerably above any anticipated operating temperature.

Corvel coatings have been continuously in contact with hot transformer oil for more than six months with no effects other than slight discoloration.

Fluidized bed coatings are applied by dipping the preheated part into a bed of finely divided powders. Powders are fluidized, or suspended, by an ascending current of air within a specially designed tank containing the powder. As individual particles of the fluidized powder contact the heated part, they fuse and adhere to the surface.

Large Ultrasonic Sales Organization Established

Ultrasonic Industries Inc. has established more than 500 distributors, dealers and jobbers located in nearly every principle city in the United States and abroad to sell its ultrasonic cleaning equipment.

Chemical Corporation Enters License Pact

The Chemical Corporation of Springfield, Massachusetts and Tool Treatments (Chemicals) Ltd. of West Bromwich, England, will manufacture and market each other's metal-finishing products.

The Luster-on line of chromate conversion coatings for corrosion protection and decorative finish of nonferrous surfaces will thus be represented throughout Great Britain and Ireland by Tool Treatments. In exchange the Chemical Corporation will offer the Blakodizing chemical blackening process for steel for the first time in the United States.

GATX Acquires Infilco

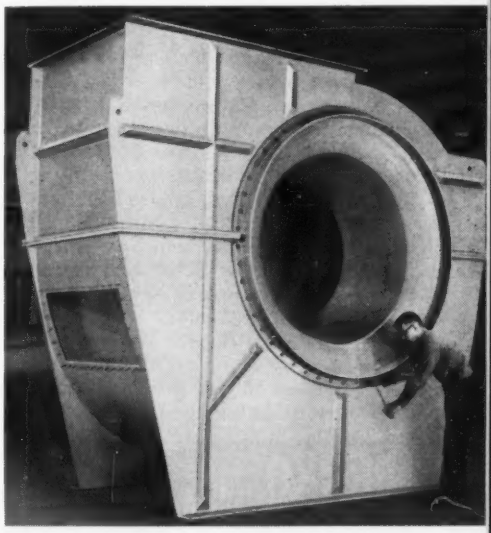
General American Transportation Corporation of Chicago has acquired the outstanding stock of Infilco, Inc.

Present plans are that the Tucson firm will continue to operate under its present management as part of the Fuller group of General American Transportation Corporation.

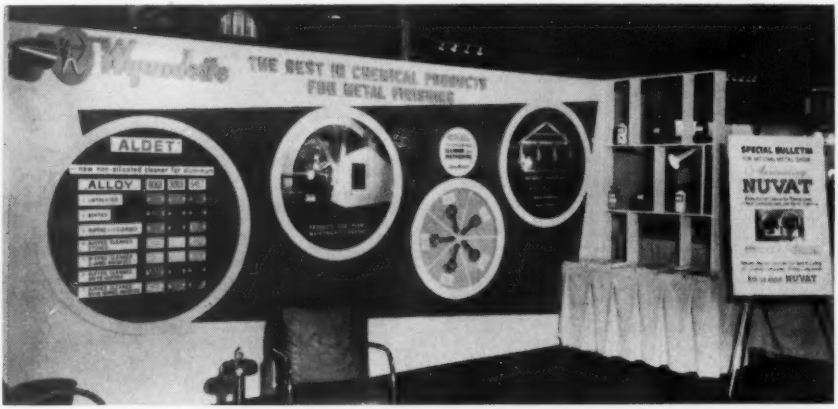
Wyandotte Features Soak Cleaner at Western Metal Exposition, March 20-24

Wyandotte Chemicals' booth No. 628 will show Nuvat, a non-scumming soak cleaner based on synthetic detergents. Nuvat readily removes buffing compounds, drawing oils and similar

(continued)



This illustration shows one of two huge solid-plastic fan housings recently built by Heil Process Equipment Corporation for a west coast manufacturer. Each of the two housings is approximately 11 by 11 by 5 feet. They are reported to be the largest plastic fan housings ever built. Each fan is rated to handle 60,000 c.f.m. of sulfuric acid fumes.



Wyandotte Booth for Western Metal Exposition in Los Angeles this March

soils, eliminates streaks, "clouds" and blisters on metal surfaces.

Also featured is Nordall, an emulsion spray cleaner that provides rust protection between operations; Aldet, a silicate-free, non-etching soak cleaner for aluminum and other metals; Alkaway, a paint stripper for new-type organic finishes such as epoxies, acrylics and vinyls and Wyandotte products for plant maintenance cleaning.

In attendance at the Los Angeles Exposition will be E. J. Kubis, manager, Metal Finishing Sales; W. C. Van Keuren, manager, Los Angeles Sales District; R. H. Andrew, Los Angeles District industrial field sales manager and J. H. Schneider, technical service department.

BRUKO . . The only company in America with a full line of processing materials. Order your specially formulated products for cleaning, buffing, and polishing from

BRUCE PRODUCTS COMPANY

HOWELL • MICHIGAN

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Atlas Powder, Stuart Co., To Merge

Ralph K. Gottshall, president of Atlas Powder Company of Wilmington, Delaware, and Arthur Hanisch, president of The Stuart Company of Pasadena, California, recently announced the signing of a memorandum of intent to merge the two companies.

The Stuart Company, organized in 1941, manufactures and markets ethical drugs throughout the United States. Atlas Powder Company was incorporated in 1912 and manufactures chemicals and explosives.

Rayon Processing Company Changes Name

Microfibres, Inc., is the new name of Rayon Processing Co. of R. I., Pawtucket, R. I., producer of flock. "Our new name," states Norman E. McCulloch, Jr., president, "is much more indicative of what we actually do.

"We are no longer primarily a rayon processing company. Instead, we offer a complete range of precision-cut natural, synthetic and metallic fibers," Mr. McCulloch said.

Western Metal Show Visitors To See Two Colors Sprayed in One Booth

Spraying two colors automatically in the same booth at ultra-high speeds without masking the object being painted will be demonstrated at the 12th Western Metal Congress and Exposition March 20-24 by The DeVilbiss Company.

The feat will be performed with the company's new automatic airless spray gun. Conical containers will be sprayed simultaneously with two separate colors in a single-section spray booth.

The new automatic airless gun, designed for use in installations which already have automatic finishing machines, offers a remarkable degree of control of spray, even at high production speeds.

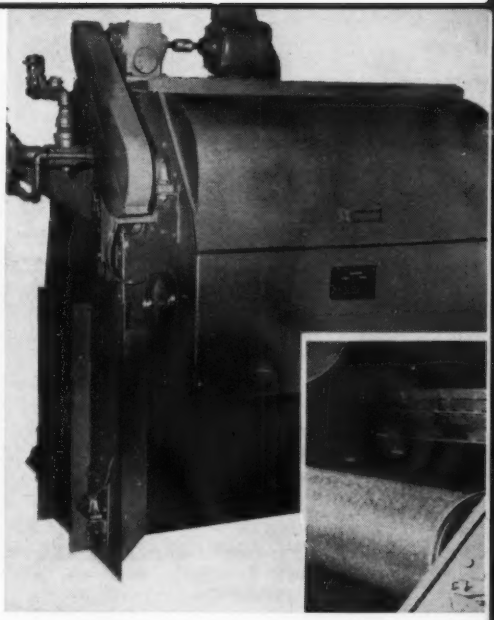
Also to be featured in the DeVilbiss display will be batch-type industrial ovens assembled from stock components, and a new wet type dust collector which has no moving parts and requires minimum floor space.

Turnkey Engineering Will Display Cost-Cutting Automatic Filter Screen at Western Metal Show

Turnkey Engineering Company, Inc. of South Gate, California, recently became exclusive distributor in thirteen western states for H. R. Black Company equipment, including a new automatic filter screen. A pilot model will be included in Turnkey's display at the Western Metal Show in Los Angeles, March 20 to 24. The machine will be in constant operation to demonstrate the Turnkey-Black method of removing contaminants from spray washing, rinsing and treating solutions.

The automotive industry currently reports substantial savings in filtering phosphatizing solutions with this equipment.

The unit is adapted to existing side tanks and utilizes present pumps for spraying, recirculation of solution and back washing of the rotating screen.



Turnkey-Black Automatic Filter Screen

Delavan Manufacturing Company Names Representatives

Delavan Manufacturing Company, West Des Moines, Iowa, has appointed three new manufacturers' representatives.

O'Brien Steam Specialty Company,

(continued)

PAKISTAN SPEAKS

"I enjoyed taking your course which was highly interesting and very informative. The method you adopted to make things clear is a very unique one. I am sure that anyone attending your course will benefit immensely, theoretically as well as in the practical field," writes plating chemist Ajmal Khan of Karachi, Pakistan. No reason why you won't benefit too. Write Dr. J. B. Kushner, Electroplating School, Box 2066P, Evansville 14, Ind.

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Inc., Syracuse, N. Y., will represent Delavan in upstate New York. Hovey Spray Equipment Co., 63rd and Vine St., Philadelphia, Pa., will serve Delavan in eastern Pennsylvania, southern New Jersey, Delaware, Maryland and Washington, D. C. The third representative is King & Shepherd, Inc., 50 Church St., New York City, to serve metropolitan New York and northern New Jersey.

Effective January 1, 1961, these representatives will handle Delavan's complete line of industrial nozzles for metal cleaning, metal finishing, air conditioning, flooding, washing, spray drying, airless spray painting and other applications.

NEW POSITIONS

Irvine F. Williamson has been appointed superintendent of **Norton Company's** Santa Clara, California, plant after a period of special training at the main plant in Worcester.

★ ★ ★

Peter Catalanotto appointed chemical and sales engineer by **Magnus Chemical Company,** Garwood, N. J. specialist in the development and manufacture of industrial cleaning compounds, washing and drying equipment and metal working lubricants.

Peter Catalanotto

Raleigh Estrada

Magnus has also announced the appointment of seven regional sales managers in districts ranging from Maine to Florida and as far west as Wisconsin.

New Magnus managers and their districts are:

Richard J. Davis, Louisville, Ky., the State of Kentucky and southern Indiana.

Raleigh Estrada, Chicago Heights, Ill., the Chicago area and southeastern Wisconsin.

Alvin H. Lampp, Orlando, Fla., the State of Florida (excluding the western panhandle), Georgia and parts of North Carolina.

Willard F. Moore

Alex Simpson, Jr.

SHOVE-L-TRUCKS

A "man-sized" truck built for rugged use. The beveled-edge plate is extra large for safe and easy handling of cartons, tote boxes, carboys, and fibre drums.

Model FC8, 750 lb. capacity with 8" dia. cushion-rubber wheels. Price $44.00 f.o.b. Chicago.

ECONOMY ENGINEERING 4513 W. Lake St., Chicago 24, Illinois

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Alvin H. Lampp

Frank E. Lanaman

Harold R. Potts, Jr.

Richard J. Davis

Frank E. Lanaman, Cincinnati, Ohio, portions of Ohio and Indiana.

Willard F. Moore, North Syracuse, N. Y., upstate New York and part of Pennsylvania.

Harold R. Potts, Jr., West Hartford, Conn., the State of Connecticut.

Alexander Simpson, Jr., Lynnfield Centre, Mass., Boston area, coastline New Hampshire and Maine.

★ ★ ★

Management changes at **Lord Chemical Corporation,** York, Pa., include resignation of **H. R. Stitely** as president. He will continue as a director and a consultant. **Paul H. Setzler** has been named vice president and general manager.

This announcement was made by **James F. Connaughton,** president of **Bell Intercontinental Corporation** of which Lord is a subsidiary. Mr. Stitely, president since 1953, is succeeded by Mr. Connaughton.

Paul H. Setzler

Gerald Lewis

Cooper Alloy Corporation, Hillside, New Jersey, appointed **Gerald Lewis** vice-president of marketing and engineering.

★ ★ ★

Russell T. Cobb promoted to assistant sales manager of **The Seymour Manufacturing Company,** Seymour, Connecticut.

★ ★ ★

The Diversey Corporation has named **W. C. Thompson** assistant manager of the Metal Industries Department.

Cut **TUMBLING** *Costs*

With Ti-Co

COB MEAL

A Grade for Every Application

Drying — Polishing

Deburring — Finishing

TI-CO INDUSTRIES, INC.

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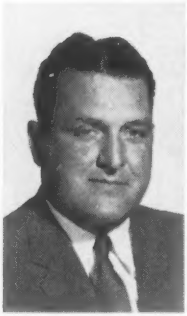
Watson-Standard Company has appointed **Joseph K. Patterson** as district sales manager for the states of Ohio and Michigan, with headquarters in Cleveland, Ohio.

Charles T. Kellogg

Frederick S. Foster



Ken C. Tucker

Theodore Z. Voyda

Clarence A. Hedlund

William C. Swanson

Dr. Edward B. Tooper appointed assistant vice president assigned to Research, Engineering, and Production at **DuBois Chemicals, Inc.**

★ ★ ★

Richard F. Puffer, vice president of **The Hubbard-Hall Chemical Company,** Waterbury, Connecticut, and director of the Industrial Division of the company, has announced the following appointments following reorganization of the Industrial Division:

Frederick S. Foster, also a vice president, will head the Heavy Chemicals Department. This department concentrates on the sale of heavy chemicals.

Theodore Z. Voyda, assistant vice president, will manage the Metal Finishing Department. Mr. Voyda will head the department's technical, research and sales staffs.

Charles T. Kellogg, assistant treasurer, will be manager of the Distributor Sales Department, which is geared to service distributors handling Hubbard-Hall anodes and metal finishing supplies.

★ ★ ★

Ken C. Tucker named assistant sales manager of **Oakite Products, Inc.,** New York manufacturer of specialized chemical compounds for cleaning and metal treating.

★ ★ ★

William C. Swanson, Brookfield, Wis., has been appointed industrial representative for **Despatch Oven Company,** Minneapolis. Mr. Swanson's territory includes several counties in eastern and southern Wisconsin.

★ ★ ★

Clarence A. Hedlund appointed northwest district manager for **Minnesota Paints, Inc.**

Mr. Hedlund succeeds **Charles B. Rowley** who is retiring. Mr. Rowley will continue to serve in an advisory capacity.

Pennsalt Chemicals Corporation, Philadelphia, has appointed **Dawes Walter** manager of advertising and Public Relations and **Richard S. Lee** assistant advertising manager.

Richard S. Lee

Dawes Walter

Dr. Edward A. Parker

James A. Powers

Dr. Edward A. Parker promoted to technical director and **James A. Powers** to research director of **Technic, Inc.,** Providence, R. I., maker of solutions for electroplating with gold, platinum, rhodium, and palladium.

★ ★ ★

J. Holland & Sons, Inc., Brooklyn, N. Y. manufacturer and distributor of machinery and materials for metal finishing, has announced new officers, as follows: **Louis Holland,** president; **William Holland,** treasurer; **Arthur Holland,** secretary; **Abraham Polmar,** vice president.

William A. Hopkins appointed electroplating product specialist for **Metal & Thermit Corporation.** Mr. Hopkins will be headquartered in M&T's Detroit offices.

Howard Grivna

William A. Hopkins

Timesaver Sanders has appointed **Howard Grivna** as the firm's design engineer.

★ ★ ★

A new top-management team has been installed at **The Wilson Rubber Co.,** Canton, Ohio, maker of industrial, linemen's, household and surgical rubber gloves.

Wilson's president, **John W. Simmons,** moves to Rutherford, N. J., to become executive vice president and chief of operations of **Becton, Dickinson and Co.** Wilson Rubber is a subsidiary of Becton, Dickinson.

Stepping into the top operating spot

(continued)

IDEAL TACK RAGS

FOR A PERFECT FINISH

Bulk, Bagged, 72 yd. pieces in continuous lengths. Also Rolls.

Immediate Delivery

IDEAL CHEMICAL COMPANY

1499 DEAN DRIVE • SOUTH EUCLID 21, OHIO

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at Wilson is **John Yacos, Jr.**, former plant manager, who has been named general manager.

T. L. Peterson becomes sales manager, responsible for all Wilson sales. He was formerly manager of sales for the Industrial Division.

In other promotions at Wilson, **George Lenhart** was named factory superintendent in charge of all production, **Elwyn H. Becker** was appointed product development manager, **Howard Olsen** became controller, and **William S. Zimmerman** moved up to plant manager.

Richard L. Moody, former Wilson sales representative in the field, has moved to Canton as assistant sales manager, Industrial Division.

L. E. Novy has joined the Wilson technical staff as plant chemist.

★ ★ ★

Alco Chemical Corporation has appointed **Larry Withrow** vice president in charge of sales and the chemical laboratory.

Larry Withrow

Jess J. Andresen

Jess J. Andresen, president of **Turnkey Engineering Company, Inc.**, South Gate, California, has been elected to the Board of Directors of **The Electric Furnace Company**, Salem, Ohio.

Turnkey, a California corporation and a wholly owned subsidiary of The Electric Furnace Company, is a designer, builder and installer of metal cleaning equipment, spray booths, ovens, plating equipment, heat treating furnaces, air purification systems, materials handling and conveying systems.

★ ★ ★

Levco Metal Finishers, Long Island City, New York, has appointed **Milton Nadel** general plant manager.

Milton Nadel

Stanley E. Bacon

Stanley E. Bacon has been named industrial sales manager for the midwestern region by **Behr-Manning Co.** of Troy, N. Y., manufacturer of coated abrasives and pressure-sensitive tapes, and a division of Norton Company.

Mr. Bacon, whose headquarters will be at the firm's Chicago offices, succeeds **Arthur W. Bell,** regional manager for the past 12 years. Mr. Bell asked to be relieved of immediate managerial duties but will continue his headquarters contact work with several large national accounts, working out of the Chicago branch.

★ ★ ★

Dr. Robert H. Reed appointed vice president, development, **Solvay Process Division, Allied Chemical Corp.**

The appointment of Dr. Reed coincides with a major expansion of Solvay's research facilities at Syracuse, N. Y., now underway.

Joseph Azzolino appointed technical director for **E. C. Electroplating, Inc.,** Garfield, N. J.

Harold W. Mears

Joseph Azzolino

Harold W. Mears appointed northeastern states regional sales manager, Welding Products Division, **Metal & Thermit Corporation.**

★ ★ ★

Ralph N. Kingsbury has joined **Enthone, Inc.,** New Haven, Connecticut, **subsidiary of American Smelting and Refining Company,** as a research chemist.

Ralph N. Kingsbury

J. George Warneck

J. George Warneck appointed sales engineer in the Los Angeles office of **Sel-Rex Corporation.**

Cooper Alloy Corporation, Hillside, N. J., has appointed **Stuart F. Cooper** assistant general sales manager.

Jim McDonald

Stuart F. Cooper

Heatbath Corporation has appointed **Jim McDonald** as technical sales representative in central and western Illinois and Iowa. Mr. McDonald will work out of the Chicago office.

★ ★ ★

The Speedie Buffing Compound Division of The Buckeye Products Company, Cincinnati, has appointed **John Carroll** sales representative in Ohio, Indiana and Kentucky.

Mark A. McGinnis

John Carroll

Mark A. McGinnis has been appointed sales manager of the newly organized **Singleton Company.**

Frederick Gumm Chemical Company, Inc., Kearny, N. J., has named **Marvin R. Moyer** technical sales representative for its complete line of plating, aluminum finishing, and barrel finishing compounds and equipment in eastern Pennsylvania (excluding Philadelphia), Delaware and Maryland.

Marvin Moyer

John R. Strom

John R. Strom, chemist and process engineer for the **Roto-Finish Company,** Kalamazoo, Mich., has been appointed to the newly created post of technical director of the Ransohoff Company, Hamilton, Ohio. Both the Roto-Finish and Ransohoff Companies are under the same management.

★ ★ ★

North American Mogul Products Company, Cleveland industrial water treatment firm, has announced formation of a new executive and management group.

Arthur W. Pugsley, president, has been named chairman of the board. **C. Carlisle Tippit,** now vice president and treasurer, becomes president and treasurer.

R. H. Mohrman and **E. R. Strunk** will retain their present positions as executive vice president and secretary, respectively.

William T. Sullivan, director of sales and marketing, was named vice president-sales and marketing. **George P. Loomis, Jr.** was elevated from director of service and development to vice president-customer service and development. **Stiles B. Twitchell** was appointed technical sales director.

★ ★ ★

Fostoria Corporation has appointed **C. W. McDaniel** director of sales for all electrical products of the company. These products include infrared industrial heating equipment, lighting equipment and comfort heaters.

★ ★ ★

Three appointments in the research department of **Solvay Process Division, Allied Chemical Corporation,** have been announced: **Dr. Elwood F. Booth, Jr.** becomes assistant director of research; **Dr. Edward R. Degginger,** research supervisor; and **Dr. Michael J. Skrypa,** associate research supervisor.

★ ★ ★

Lawrence O'Hanlon appointed chief design and application engineer for the Filter Division of **The Meaker Company, subsidiary of Sel-Rex Corporation,** Nutley, N. J.

Mr. O'Hanlon will make his headquarters in Nutley, N. J. Filters are produced by The Meaker Company in both the Nutley, New Jersey, and Chicago factories.

Lawrence O'Hanlon

John E. O'Brien

The appointment of three district sales managers has been announced by **Kelite Corporation.**

Clifford A. DeMeritt

William J. Hennessy

John E. O'Brien is now New York district sales manager. Mr. O'Brien will oversee sales in New England, New York, and New Jersey.

William J. Hennessy is now Philadelphia district sales manager, supervising sales in eastern Pennsylvania, southern New Jersey, Delaware, Washington, D. C., Maryland, and Virginia.

Clifford A. DeMeritt is now in charge of the Orlando District which consists of the Southeastern states of North and South Carolina, Alabama, Georgia, Tennessee, and Florida.

★ ★ ★

A. Everett Cook has joined **Winter Products Co.,** Portland, Oregon, as chief chemist and plating supervisor. Mr. Cook was formerly associated with **Tektronix, Inc.,** as chief production chemist. He is president of the Portland Branch, A. E. S.

★ ★ ★

The Diversey Corporation has named **E. B. Willey** metal industries district manager for the Pacific Coast area.

In his new position Mr. Willey succeeds the late C. F. Wentworth. He will make his headquarters at Diversey's South Gate, Calif., office.

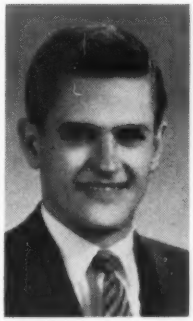
★ ★ ★

DuBois Chemicals, Inc., has appointed three new officers: **George H. Scheper** to financial vice president; **Edward R. Schoener** to assistant to the president; and **Thomas E. Westerfield** to treasurer and assistant secretary of the company.

Robert Ossege, formerly cost accountant, is now office manager.

★ ★ ★

Bee Chemical Company, Lansing, Illinois, has appointed **George F. Matacek,** district manager of Bee Chemical's Western Division, Gardena, California.



George F. Matacek

Dodd S. Carr

Dr. Dodd S. Carr has rejoined **Bart Laboratories and Design, Inc.,** as vice president of research. In addition to his duties in research on new and improved electroplating processes, Dr. Carr will serve as Quality Control Director for the parent company, **Bart Manufacturing Corp.**

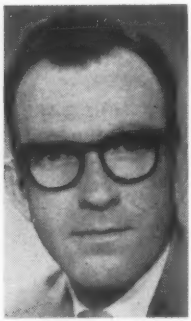
★ ★ ★

Ronald J. Hurley appointed general manager of the **Acoustica Division of Acoustica Associates, Inc.,** Los Angeles, Calif.

As general manager of the Acoustica Division, Mr. Hurley is responsible for the research, development and production of ultrasonic cleaning

(continued)

equipment, liquid level gaging devices, and propellant utilization systems for the Atlas missile.



Ronald J. Hurley

Edward B. Cochran

Edward B. Cochran has been named vice president-finance of **Acoustica Associates, Inc.**, manufacturer of ultrasonic systems.

MEETINGS

Blue Ridge Branch Hosts 3rd Annual Dixie Regional

Despite a snowfall that held attendance below 200 members and guests, the Blue Ridge Branch, A. E. S. managed an excellent Dixie Regional Meeting on Feb. 3 and 4 in the Hotel Roanoke, Roanoke, Virginia.

The two-day program included a trip to General Electric Co., Industry Controls Div., Salem, Virginia, educational sessions on both Friday and Saturday, a joint-hospitality party given by a number of suppliers and held under the general sponsorship of the Metal Finishing Suppliers' Assn., a reception and banquet.

The program attracted visitors from Illinois, Ohio, Michigan, Pennsylvania,

Fig. 1—T. R. Boggess (second from right) officiates at registration desk for Dixie Regional Meeting. Shown (left to right) are: R. E. Geuder, Allied Research Products, Inc.; Henry Strow, True Brite Chemical Products Co.; Mr. Boggess; M. H. "Duke" Dent, Pan American World Airways, Miami Branch librarian and 2nd vice president.

Fig. 2—M. Milo, Western Electric Co., opens one of the Dixie Regional education sessions.

Fig. 3 — Dr. Harold J. Read, Professor of Physical Metallurgy, Pennsylvania State University, discusses "Hydrogen Embrittlement in Electroplating."

Fig. 4—Officials of Blue Ridge Branch, A. E. S., representatives from A. E. S. Executive Board, and speakers for the Dixie Regional Meeting assemble for luncheon. Shown (left to right) are: E. H. Garner, Oren Products Co., Roanoke, Va.; John B. Winters, president and technical director, Incar, Inc., Cleveland, Ohio, who spoke on "The Anode Side of the Story"; C. Heamon Castle, vice president and technical director, Abrado Finish Corp., Grand Rapids, Mich., who spoke on "The Application of Barrel Finishing Methods and Equipment"; Henry B. Koehler, manager of electrical sales, Hanson-Van Winkle-Munning Co., Matawan, N. J., who spoke on "The Importance of Rectifier Control in Plating"; Dr. Louis A. Pardue, Virginia Polytechnic Institute, Blacksburg, Va., who discussed "This Age of Man"; John P. Nichols, executive secretary, A. E. S.; Chester G. Borlet, technical director, Grand Rapids Brass Co., Grand Rapids, Mich., 1st vice president, A. E. S.; Dr. Nelson F. Murphy, Virginia Polytechnic Institute, Blacksburg, Va., educational co-chairman; Rev. Lewis E. Bates, Pastor, Vinton Baptist Church, Vinton, Va.; C. G. Haupt, chemist, Norfolk & Western Railway Co., Norfolk, Va., who spoke on "Aspects of pH in Electroplating"; T. R. Boggess, finishing supervisor, Norfolk & Western Railway Co.; M. Milo, Western Electric Co., Greensboro, N. C., educational co-chairman. Speakers not shown in the picture are: Dr. Harold J. Read, who discussed "Hydrogen Embrittlement in Electroplating"; and Ezra A. Blount, editor of PRODUCTS FINISHING, Cincinnati, Ohio, who described in his talk during the sessions "The Japanese Finishing Industry Today."

Fig. 5 — T. R. Boggess, Norfolk & Western Railway Co., Blue Ridge Branch founder and past president, opens first Dixie Regional educational session. Shown (left to right) are: Dr. Louis A. Pardue, Virginia Polytechnic Institute, keynote speaker; Rev. Lewis E. Bates, who gave the invocation; Mr. Boggess; Dr. Nelson F. Murphy, Virginia Polytechnic Institute, contributing editor of PRODUCTS FINISHING, who was a session chairman.

Fig. 6—Representatives of the Dixie Region welcomed Memphis-Midsouth Branch as a new member of the Dixie Region. P. R. Dickinson (third from left) attended the meeting as the official representative of Memphis-Midsouth Branch. Bruce E. Wallace, Bassick-Sack, Div. of Stewart-Warner Corp. (third from right) was chairman of the Host Branch Committee in charge of arrangements for this Dixie Regional Meeting.

Fig. 7—Scene at banquet following completion of Dixie Regional Meeting. Representatives of Blue Ridge Branch and Miami Branch are shown at the table in the foreground. (Photographs by PRODUCTS FINISHING.)

Connecticut, New Jersey, District of Columbia, and Maryland, as well as from the several states comprising the Dixie Region.

At a meeting of the Dixie Regional Committee, the new Memphis-Midsouth Branch was voted into membership in the Dixie Region.

The accompanying photos show some of the events and personalities involved in this interesting meeting.

Tri-State A. E. S. Hosted by Columbus Branch

The Columbus Branch of the American Electroplaters' Society hosted this year's Tri-State Regional Meeting at the Deshler-Hilton Hotel in Columbus, Ohio, on February 4.

Morning and afternoon educational sessions were arranged by co-chairmen William Safranek, Battelle Memorial Institute, and William Neill, Columbus Metal Products Company.

General chairman of the host committee was Calvin G. Smith, Diversey Corp. Photos of speakers and the Tri-State Permanent Committee are shown on the opposite page.

Fig. 1—Speakers and dignitaries at Tri-State A. E. S. Meeting included (left to right) Richard J. Anderson, assistant to the vice president, Battelle Memorial Institute, Columbus, Ohio, whose topic was "Journey into Ignorance"; William Geissman, National Lock Co., Rockford, Ill., who talked on "Buffing of Zinc Alloy Die Castings—First Phase of Project 18"; R. D. Wysong, Studebaker-Packard Corp., South Bend, Indiana, immediate past president of the A. E. S.; Frank L. LaQue, vice president and manager of development and research, International Nickel Co., Inc., New York, N. Y., who spoke on "Materials in Outer Space"; Manuel Ben, supervisor of the Plating Service Section, Electrochemistry Dept., General Motors Corp., (and second vice president of A. E. S.) Detroit, who presented talk on "Plating on Aluminum"; and Walter L. Pinner, manager of plating development, McGean Chemical Co., (and a past president of A. E. S.) Cleveland, whose topic was "Developments in Accelerated Corrosion Testing—Report on A. E. S. Project 15."

Fig. 2—Governing body of Tri-State Region, A. E. S., met during annual meeting on February 4 in Columbus, Ohio, to discuss future plans. In attendance (left to right) were Calvin G. Smith, Diversey Corp., and John Coffey, Westinghouse Electric Corp., both of Columbus; Charles C. Whitt, Bill Young & Co., Inc., Louisville, Ky.; W. B. Stephenson, Jr., General Electric Co., and Carl Truman, Fisher Scientific Co., both of Cincinnati; Bert Hawhee, Allied Research Products, Inc., Paul Johnson, Guide Lamp Div., General Motors, Bob Stewart, Metal & Thermit Corp., and R. C. Bruck, Platers Supply Co., Inc., all from Indianapolis; Glenn R. Schaer, Battelle Memorial Institute, Columbus; Duane Prosser and Walter Anderson both of Frigidaire Div., G. M. C., Dayton, Ohio. Not shown: G. H. Poll, Jr., PRODUCTS FINISHING, Cincinnati, Ohio. (Photographs by PRODUCTS FINISHING.)

48th Annual Convention
American Electroplaters' Society
June 18-23
Hotel Statler, Boston, Mass.

M. F. S. A. Trustees Schedule Functions for Boston A. E. S. Convention

Trustees of the Metal Finishing Suppliers' Assn., Inc., met in Hartford, Conn. on Feb. 10 and 11.

Manson Glover

Among the matters of business considered was a full report from Manson Glover, Glover Coating Co., M. F. S. A. liaison representative for the A. E. S. Convention to be held in Boston June 19-22. Mr. Glover, a past president of M. F. S. A., announced the M. F. S. A. events for convention week:

Sunday, June 18, Trustees Meeting, Hotel Statler.

Monday, June 19, Annual Luncheon and Business Meeting, Hotel Statler.

On Monday evening, M. F. S. A. will be host to all A.E.S. Convention registrants at its Annual Ball and Open House Party, to be held at the Hotel Statler.

On Wednesday, June 21, the M. F. S. A. Golf Tournament will be held at Marshfield Country Club, Marshfield, Mass. This affair will be managed by Bob Burford, Pennsalt Chemicals Corp., and Harry Sanders, Enthone, Inc.

On Thursday evening, June 22, M. F. S. A. will give a cocktail party for all A. E. S. Convention registrants, just prior to the convention banquet.

Officers and trustees of M. F. S. A. attending the Feb. 11 meeting were: Fred P. Green, Crown Rheostat & Supply Co., Chicago; J. G. Carrique, Alloycraft, Ltd., Montreal; Dr. H. L. Kellner, Lea Mfg. Co., Waterbury; J. M. Davidson, Pennsalt Chemicals Corp., Philadelphia; King Ruhly, Michigan Chrome & Chemical Co., Detroit; R. M. Norton, Hanson-Van Winkle-Munning Co., Matawan, N. J.; J. E. Trumbour, "Metal Finishing," Westwood, N. J.; E. L. Combs, Diamond Alkali Co., Cleveland; H. J. McCracken, Northwest Chemical Co., Detroit; J. A. Cairns, Allied Research Products, Inc., Baltimore; E. A. Blount, PRODUCTS FINISHING, Cincinnati.

Also present for the meeting were: Frank O. Beuckman, Eastman Kodak Co., A. E. S. 3rd vice president; A. B. Hoefer, Frederic B. Stevens, Inc., Detroit; G. H. Huenerfauth, Crown Rheostate & Supply Co., Chicago..

Mr. Hoefer, chairman of the Public Relations Committee, presented a comprehensive report on a public relations program that is under study by his committee.

At the invitation of A. E. S. President Dr. W. Andrew Wesley, International Nickel Co., the M. F. S. A. officers and trustees met with the A. E. S. Executive Board to discuss matters of mutual interest.

★ ★ ★

Phoenix Branch A.E.S. Presents Symposium

The Second Annual Symposium on Metal Finishing will be presented by the Phoenix Branch, American Electroplaters' Society, on March 25 at Arizona State University, Tempe, Arizona.

The program includes morning and

afternoon educational sessions and a luncheon.

Papers scheduled for the morning session, beginning at 9:00 A.M., are as follows:

1. *Copper Plating,* by Elburn Marcum, Electrochemicals Dept., E. I. du Pont de Nemours & Co., Incorporated.
2. *Some Aspects of Air-Agitated Nickel Plating,* by William Lidtke, L. H. Butcher Co., Los Angeles.
3. *Chromium Plating—Up To Date,* by E. L. Combs, Diamond Alkali Co., Cleveland.

The afternoon session includes the following papers:

1. *Definning and Establishing Metal Finishing Quality Standards,* by Gene Kirsch, General Electric Co., Computer Dept., Phoenix, Arizona.
2. *Costing and Pricing Metal Finishing Production Jobs,* by Willard Bell, Chemresearch Co., Phoenix and Los Angeles.
3. *Control of Metal Finishing Quality,* by Jack Beall, Crown Chemical and Engineering Co., Los Angeles.

Registration fee is 5.00 per person. Persons who plan to attend should notify Joe Motil, 316 W. 6th St., Mesa, Arizona.

★ ★ ★

Toronto Branch A.E.S. Sponsors Symposium on March 28

The Toronto Branch of the American Electroplaters' Society will celebrate its 49th anniversary by conducting a symposium on metal finishing at the Seaway Hotel on March 28.

The program will include morning and afternoon educational sessions. Speakers include Cleveland F. Nixon, General Motors Corporation; Clarence H. Sample, International Nickel Co., Inc.; and Dr. A. Kenneth Graham, Graham, Crowley & Associates.

General chairman of the meeting is Herbert A. Skelton of International Nickel Co., Inc.

★ ★ ★

New England Regional A.E.S. Meeting April 22 in Hartford

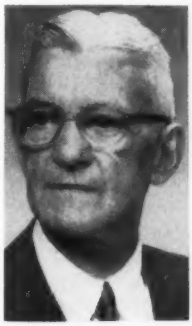
The 22nd Annual New England Regional Meeting will be held at the Statler-Hilton in Hartford on April 22. Host branch for this year's meeting is New Haven.

Alexander R. Salmond, educational chairman, has announced that the technical session begins at 2:00 P.M. Papers to be presented are as follows:

New Industrial Applications for Precious Metal Coatings, by Al Korbelak, vice president, Sel-Rex Corporation, Nutley, N. J.

Metal Etching—Functional and Decorative, by Ralph E. Pettit, Technical Advisor, Metal Industries Dept., the Diversey Corporation, Chicago, Ill.

The meeting will conclude with cocktails, dinner and dancing. Further information may be obtained from General Chairman Harry R. Taylor, 366 Anderson Ave., Milford, Conn.



Ralph E. Pettit

Al Korbelak

SOCIETIES

Hot-Dip Galvanizers Association and Zinc Institute To Cooperate in Expanded Research and Development Program

R. G. Kenly, president of the American Zinc Institute, and Hartley Burgess, president of the American Hot Dip Galvanizers Association, recently announced that both organizations will launch a joint research and development campaign to expand the uses of hot-dip galvanizing.

R. G. Kenly

H. R. Burgess

The purpose of the cooperative campaign, to be inaugurated early in 1961, is to stimulate research and experiment by architects, engineers and technical experts in many fields where hot-dip galvanizing is not being utilized to its fullest potential, as well as to encourage product improvements.

The first officers of the National Society of Aerospace Material & Process Engineers were recently elected in Dallas, Texas. They are (left to right, seated) George E. Holback, vice president, and Bernard Silverman, president. Standing at rear are (left) Frank E. Robinson, secretary, and Harold V. Newman, treasurer.

E. E. Oberland Candidate for A.E.S. Office

E. E. Oberland

The Baltimore-Washington Branch will sponsor E. E. Oberland as a candidate for the office of third vice president of the American Electroplaters' Society.

Mr. Oberland is a chemical engineering graduate of the University of Wisconsin, and has been associated with the Western Electric Company for many years in Chicago, New York and Baltimore.

He has had a variety of assignments, including supervisory, in the industrial engineering field, and has participated actively in the Industrial Management Society, becoming its executive secretary while in Chicago. His present job is senior development engineer responsible for planning and development in electroplating, metal cleaning, and organic finishing at the Baltimore Plant of Western Electric.

Candidate Oberland has served diligently in the Baltimore-Washington

Branch, having been librarian, secretary, vice president, and president. He is a delegate and has been responsible for promoting improved attendance at branch meetings and greater interest in branch affairs in general.

TRAINING COURSES

Mailboxes and Car Parts: DeVilbiss Students Learn To Improve Finishes

In attendance at a recent DeVilbiss industrial products finishing school were representatives of firms producing reflectorized signs for highways, mailboxes, caskets, boats, kitchen cabinets, stoneware, chemicals and automotive parts.

All took the same course and returned to their companies prepared to improve the finishes applied to their products or to better utilize spray painting equipment.

The five-day DeVilbiss Company factory school covers both theory and practice, so that each student was able to review the fundamentals of spray painting, the uses of the equipment, and to explore the particular problems of his industry or company. There is no tuition or charge for the school, although students pay their own travel and living expenses.

MEETINGS of INTEREST to FINISHERS

Mar. 11. Annual Meeting, Rockford Branch, A.E.S., Rockford, Ill.

Mar. 25. Second Annual Symposium on Metal Finishing, Phoenix Branch, A.E.S., Arizona State University, Tempe, Arizona.

Mar. 28. First Annual Symposium on Metal Finishing, Toronto Branch, A.E.S., Seaway Hotel, Toronto, Ontario, Canada.

Apr. 8. Annual Educational Session and Dinner Dance, Los Angeles Branch, A.E.S., Los Angeles, Calif.

Apr. 15. Annual Banquet and Dance, Baltimore-Washington Branch, A.E.S., Baltimore, Md.

Apr. 22. 22nd New England Regional Meeting, A.E.S., Statler-Hilton Hotel, Hartford, Conn.

Apr. 29. Annual Educational Session and Banquet, Milwaukee Branch, A.E.S., Schroeder Hotel, Milwaukee, Wisconsin.

May 2. Annual Educational Session and Banquet, Central Michigan Branch, A.E.S., Hotel Hayes, Jackson, Michigan.

May 5-6. Empire State Regional Meeting and Rochester Branch A.E.S. Fiftieth Anniversary Celebration, Hotel Manger, Rochester, N. Y.

May 6. Annual Banquet, St. Louis Branch, A.E.S., Sheraton-Jefferson Hotel, St. Louis, Mo.

June 16-19. Annual Convention & Management Seminar, National Assn. of Metal Finishers, Hotel Statler-Hilton, Boston, Mass.

June 18-23. 48th Annual Convention, A.E.S. (National), Hotel Statler, Boston.

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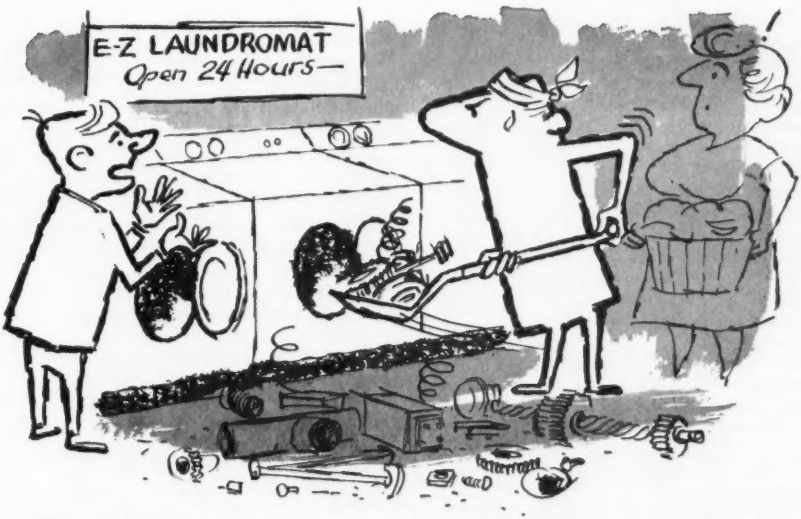

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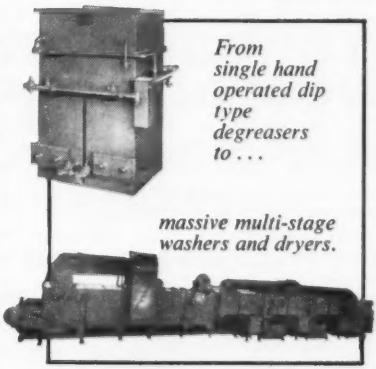

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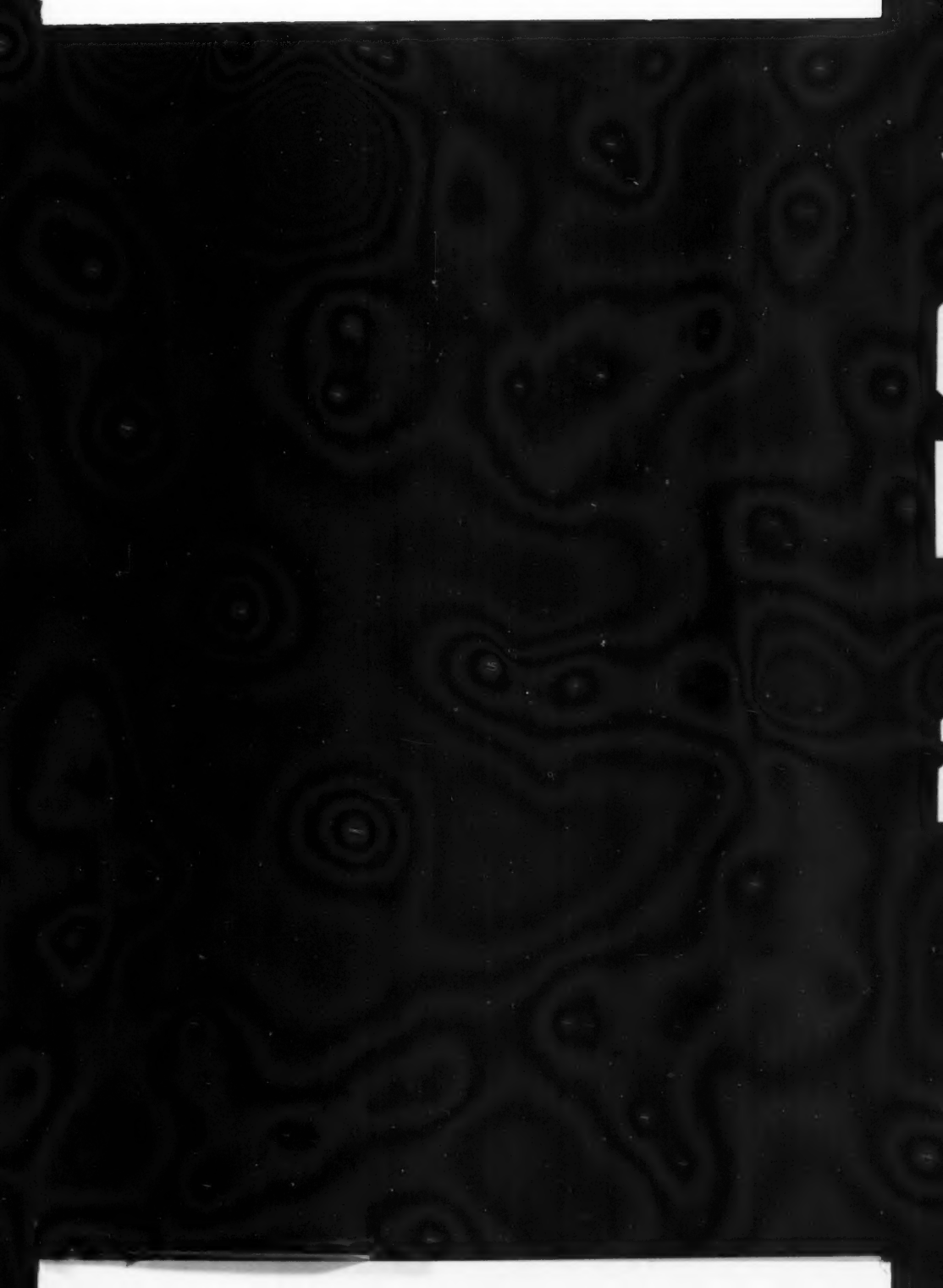
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